```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                              Database
      pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-740-211-13_COPY_11000_11933
934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            January 17, 2002, 16:24:34; Search time 5101.32 Seconds (without alignments) 3020.466 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 amacggcaggaggttgttag.....cttcmagctgcccctgcagg 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1472140 seqs, 8248589755 residues
                                                                                                                                                                                                                                                                                                                                                                                                  GenEmbl:*
                                                                                               15:
16:
17:
18:
19:
20:
21:
22:
22:
23:
24:
25:
26:
27:
28:
28:
28:
29:
                                                                                                                                                                                                                                                                                                                                                                                gb_htg:*
                                                                                                                                                                                                                                                                                                                                                                                          gb_ba:*
                                                                                                                                                                                                                                                                                                                        gb_ph:*
                                                                                                                                                                                                                                                                                                                                                                      gb_in:*
                                                                                                                                                                                                                                                                                                               gb_pr:*
                                                                                                                                                                                                                                                                                                                                           gb_pat:*
                                                                                                                                                                                                                                                                                                                                                     gb_ov:*
                                                                                                                                                                                                                                                                                                                                                             *: mo_dt
                                                                                                                                                                                                                                                                          gb_sy:*
                                                                                                                                                                                                                                   em_fun:*
em_hum:*
                                                                                                                                                                                                                                                                                                      gb_ro:*
                                                                                                                                                                             em_pat:*
em_ph:*
                                                                                                                                                                                                        em_om:*
em_or:*
                                                                                                                                                                                                                                                        em_ba:*
                                                 em_htg_inv:*
em_htg_rod:*
em_htg_other:*
                                                                             em_htgo_inv:*
em_htgo_rod:*
em_htg_hum:*
                                                                                                                                                                                                em_ov:*
                                                                                                                                                                                                                           em_in:*
                                                                                                                                                                  em_pl:*
                                                                                                                                                em_sts:*
                                                                                                                                                         em_ro:*
                                                                                                                                      em_sy:*
                                                                                                          em_htgo_hum: *
SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2944280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   000000000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 00000
                                                                                                                                                                                                                                                                                                                                                                                       C
```

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No.
                                                0 0 0 0 0 0
                                                                                                                                                                                                                                                                                    18
19
20
21
22
23
24
25
26
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          934
933.2
923.2
923.2
923.2
923.2
921.6
921.6
657.4
448.2
436.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score Match Length DB ID
                                                                                                                                                                                                                                                                                                                                                                        401
401
125.8
58
                                                                                                                                                                                                                                                                                                                                                                                                                                                          426.8
425
409.8
409.8
98.8 48502
98.7 9170
98.7 9205
98.7 9205
98.7 9205
46.7 40751
46.0 8025
45.7 40751
46.0 38227
45.7 6709
43.9 270365
42.9 41724
43.9 11030
6.2 222605
6.2 222605
5.2 11030
6.2 222605
5.2 11030
6.2 222605
5.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 11030
6.2 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42704
48502
9170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AR138377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AR146887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LAMCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XXU02427
LAMLTPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CVU39285
CVU39286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CVU39284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AF069529
BPS011580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAMOPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CVU37692
                                                                                                                                                                                                                                                                                                                                                                                     AE005288
AP002555
                                                                                                                                                                                                                                                 D90799
AC010918
AC021065
AC023169
CE1TN31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AE005492
                                                                                                                                                                  AC092343
AX024319
AX024212
                                                                                                                                                                                                                                                                                                                                                                   AE000253
                                                                                                                                                                                                                                                                                                                                                                                                                       AC009667
                                                                                                                                                                                                                                                                                                                                                                                                                                                        POP22NIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AP002562
                                                                                                                                                                                                                                     166494
                                                                                                 AL157390
AL591134
                                                                                                                                                   AF023164
              MMU011734
                                                                   AC019890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR146887 Sequence
U39284 Cloning vec
U39285 Cloning vec
U39286 Cloning vec
U39692 Cloning vec
U37692 Cloning vec
U02453 Cloning vec
U02453 Cloning vec
U02457 Cloning vec
U02457 Cloning vec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M38294 Bacteriopha
M38285 Bacteriopha
X60309 Coliphage H
AF069308 Bacteriop
AF335538 Bacteriop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF069529 Bacteriop
AJ011580 Bacteriop
AE005492 Escherich
AP002562 Escherich
                                                                                                                                                                                                                                                                                                                                                                                                               X78401 Bacteriopha
AF217253 Bacteriop
AC009667 Homo Sapi
AE005288 Escherich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR138377 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                             D90800 E.coli geno
D90798 E.coli geno
D90799 E.coli geno
AC010918 Drosophii
AC021065 Homo sapi
AC023169 Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                 AE000253 Escherich
                                                                                                                                                                                                                                                                                                                                                                                                  AP002555 Escherich
                                                                                                                                                                                                                                                               M25450 Plasmid Col
                                                                                                                                                                                                AC092343 Homo sapi
AX024319 Sequence
                                                                                                                                                                                                                              166494 Sequence 14
L16621 Caenorhabdi
                                                                                                                                                                AX024212 Sequence
AF023164 Zea mays
                                            AE003584 Drosophil
                                                             AC019890 Drosophil
AP002523 Oryza sat
                                                                                                 AL160060 Human DNA
                                                                                                                AL591134 Homo sapi
                             AJ011734 Mus muscu
                                                                                                                                                   Sequence
```

```
RESULT
AR138377
LOCUS
                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                         DEFINITION
                                                                                                                                 SOURCE
                                                                                                                                            KEYWORDS
                                                                                                                                                     VERSION
                                                                                                                                                                  ACCESSION
ORIGIN
         BASE COUNT
                                          FEATURES
                                                                                                                     ORGANISM
                                                                          TITLE
                                                       JOURNAL
                                  source
                                                                                                                                                       AR138377 11933 bp DNA
Sequence 13 from patent US 6200560.
AR138377 GI:14480722
                                                                           1 (bases 1 to 11933)
Couto, L.B., Colosi, P.C. and Oian, X.
Adeno-associated virus vectors for expression of factor VIII by
                                                                                                                                     Unknown.
                                                       target cells patent: US 6200560-A 13 13-MAR-2001;
               3258 a
               /organism="unknown"
2818 c 2717 g
                                    Location/Qualifiers
                         3140 t
                                                                                                                                                                                                            16-JUN-2001
```

ALIGNMENTS

```
RESULT
AR146887
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DЪ
                               11900 recerragrarrrecerreaaecrececrecaee 11933
                                                                         11840 CGTCGCGGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT 11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                 11780 TGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCATCTTGCCCCCGG 11839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                             11660 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 11719
                                              901 tgccttagtatttccttcaagctgcccctgcagg 934
                                                                                                                                                                                                                                                                                                  11540 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 11599
                                                                                        841 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                 781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                11480 GTCAAATTTACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 11539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11420 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCATCGTTGA 11479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11300 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTTGCAGACCTC 11359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11360 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 11419
                                                                                                                                                                                                                                                              661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11240 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAAC 11299
                                                                                                                                                                                                                                                                                                                                                                         541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11180 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 11239
                                                                                                                                                                                                                                                                                                                                                                                                                              481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11120 TGGGTTGTGCTGTTGCTGGGGCGGCGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC 11179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 934; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421 gtagtaagcgccgcctottttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11000 AAACGCCAGGAGGTTGTTAGCGCGACCTCCTGCCACCGCTTTCACGAAGGTCATGTGTA 11059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 totgootgogatggttggagttocagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcatttttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 tottoacgattatcgactcaatgotottacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 tgggttgttgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h 100.0%; Score 934; DB 6; Length 11933; Similarity 100.0%; Pred. No. 1.5e-286; Length 11933; 134; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ,0
```

В Ş B Qγ

QΨ DЬ QY

```
Db 11660 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 11719
                                                                                                                          В
                                                                                                                                                     δ
                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                            Db 11420 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAAGGAGCGAATTAACCCCATCGTTGA 11479
                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                    11540 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 11599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db 11000 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCGGTTTCACGAAGGTCATGTGTA 11059
                                                                                                                                                                                                      11480 GTCAAATTTACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 11539
721 tgaatageegaegeetttgeatetteegeaetetttetegaeaaeteteeeeeaagete 780
                                                                                                                                                                                                                                                                                                                    11360 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 11419
                                              661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                          11300 COTTATICCAGGOTOTAACTATTACCTGCGAACTGTTTCGGGGATTGCATTTTTGCAGACCTC 11359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                              541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                   11240 TOTTCACGATTATOGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGGAAAC 11299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
100.0%; Score 934; DB 6; Length 11933;
Best Local Similarity 100.0%; Pred. No. 1.5e-286;
Matches 934; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11180 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 11239
                                                                                                                                                                                                                      481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11120 TGGGTTGTGCTGTTGCTGGGGCGGCGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC 11179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                            421 gtagtaagegeegeetetttteateteaetaeeaaegagegaattaaeeeategttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                          301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 tottoacgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l aaacggcaggaggttgftagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 11933)
Couto,L.B., Colosi,P.C. and Qian,X.
Adeno-associated vectors for expression of factor VIII by target
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent: US 6221349-A 13 24-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR146887.1 GI:15110690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AR146887 11933 bp DNA
Sequence 13 from patent US 6221349.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="unknown"
2818 c 2717 g 3140 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CVU39284/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11720 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCCACAGCTC 11779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11900 TGCCTTAGTATTTCCTTCAAGCTGCCCCTGCAGG 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901 tgccttagtatttccttcaagctgcccctgcagg 934
                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        terminator
                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTCGCGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT 11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CVU39284 42529 bp DNA SYN 13-APR-1996 Cloning vector TLF97-1, lambda phage lacz translational fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96186904
2 (base
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (24-OCT-1995) Thomas Linn, Microbiology and Immunology, University of Western Ontario, London, Ontario N6A5C1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      St Pierre, R. and Linn, T.

A refined vector system for the in vitro construction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               artificial sequence; vectors.
1 (bases 1 to 42529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cloning vector TLF97-1.
Cloning vector TLF97-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U39284.1 GI:1066304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vector, complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               StPierre, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               single-copy transcriptional or translational fusions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 42529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           169 (1), 65-68 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(19507. .20760)
/gene="lacY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (19404.
                                                                                                                                                                                                                                                                                                  OPKLWELSLYVIGYSCTYDVEDOOFANFETSFFATGEOGTRVFGYVTTMGELLNASIM
FFAPLIINRIGGKNALLLAGTIMSVRIIGSSFATSALEVVILKTLHMFEVPFLLVGCF
                                                                                                                                                                                                                                                                                                                                            /translation="MYYLKNINEWMEGLEFEFYFFIMGAYFPFFPIWLHDINHISKSD TGIIFAAISLESLLEGPLEGLLSDKLGLKKYLLWIITGMLVMEAPEFIFIEGPLLQYN ILVGSIVGGIYLGECFNAGAPAVEAFIEKVSRRSNFEEFGRAFMFGCVUWALCASIVGI METINNQFVFWLGSGCALILAVLLFFAKTDAPSSATVANAVGANHSAFSLKLALELFR
                                                                                                                                                                                                                                                                                                                                                                                                                              /product="lactose permease"
/protein_id="AAC53648.1"
/db_xref="GI:1066305"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(19507. .20760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Cloning vector TLF97-1"
/db_xref="taxon:43840"
                                                                                                                                                                                                                                       complement(20812.
                                                                                                                                                                                                                                                            TLISVFTLSGPGPLSLLRRQVNEVA"
                                                                                                                                                                                                                                                                                  KYITSQFEVRFSATIYLVCFCFFKQLAMIFMSVLAGNMYESIGFQGAYLVLGLVALGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="rrnBT2 terminator"
                                                                                                                         /note="EcoRI site normally present at the 3' end of lacZ has been removed by an uncharacterized mutation"
                                                                                                                                                                                         complement(20812. .>23859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                  /product="beta-galactosidase"
/protein_id="AAC53649.1"
/db_xref="GI:1066306"
translation="VVLQRRDWENPGVTQLNRLAAHPPFASWRNSEEARTDRPSQQLR/
                                                                             /transl_table=11
                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .19489)
                                                                                                                                                                                                                                         23859)
```

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39091 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 39032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                 38851 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAAC 38792
                                                                                                                                                                                                                                                                                                      38911 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 38852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
361 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match 98.8%;
Local Similarity 99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                  tottoacgattatcgactcaatgctcttacctgttgtgcagatataaaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                      ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGTTGTGCTGGGCGGCGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC
                                                                                                  cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  925;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="imm21 substitution"
10291 a 10533 c 11616 g 10081 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LCDRYGLYVDDANIETHIGMYPMIKITDDPRWLPAMSERYTRWYQDDRNHPSVIIWSL
QNESGHGANHDALYRWIKSUDPSRPVQYEGGGADTTAFIDICEWARWUDDOPPPAVP
KWELSLPGETRPLILCEYAHANGNSLGGFAKYWAGAFROYPRLOGGFWUDWDOS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNWSAYGGDFGDTPWDRYDS
LIKYDENGNAGAFTUDWAGAFACHANGHUNGHTPWDRYDFG
AGGTEUTSEYCHENSOMWIGKWAGAHAPHTTSEMDFC
IELGNKRWOFNROSGFLSOMWIGKWALLFULRDFTRAPLDNDIGVSEATRIDPNAW
VERWKAAGHYQAEBALLQCTADTLADAVLITTAHAWQHIGKTLETISRKTYRIDGSGQM
VERWKAAGHYQAEBALLQCTADTLADAVLITTAHAWQHIGKTLETISRKTYRIDGSGGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VATRENDDESRAVLEAEVOMCGELRDYLRVTVSLWQGETQVASGTAPFGGEIIDERGG
YADRVTLRLNVENPKLWSAEIPNLYRAVVELHTADGTLIEAEACDVGFREVRIENGLL
LLNGKDLLIRGVNRHEHHPLHQVMDEGTMVQDILLMKONNFNAVRCSHYPNHPLWYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPFVPTENPTGCYSLTFNVDESWLQEGQTRIIFDGVNSAFHLWCNGRWVGYGQDSRLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SLNGEWRFAWFPAPEAVPESWLECDLPEADTVVVPSNWQMHGYDAPIYTNVTYPITVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="multiple cloning site" complement(23973. .24141) /note="rrnBT1 terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEFDLSAFLRAGENRLAVMVLRWSDGSYLEDQDMWRMSGIFRDVSLLHKPTTQISDFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="tetracycline resistance protein"
/protein_id="AAC53650.1"
/protein_id="AAC53650.1"
/db_xref="GI:1066307"
/translation="MKSNNALTVIGTVTLDAVGIGLVMPVLPGLLRDIVHSDSIASH
/translation="MKSNNALTVIGTVTLDAVGIGLVMPVLPGLLRDIVHSDSIASH
/TVAGTTGATGAVAGAYIADITDGEDRARHFGLMSACFGVGMVAGFVAGGLLGAISLH
RIVAGTTGATGAVAGAYIADITDGEDRARHFGLMSACFGVGMVAGFVAGGLLGAISLH
RIVAGTTGATGAVAGAYIADITDGEDRARHFGLMSACFGVGMVAGFWAGGLLGAISLH
APFLAAAVLNGLNLLLGCFLMOESHKGERRPMPLRAFMPVSSFRWARGMTIVAALMTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTWLNIDGFHMGIGGDDSWSPSVSAEFQLSAGRYHYQLVWCQK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AITYDVEVASDTPHPAR IGLNCQLAQVAERVNWLGLGPQENYPDRLTAACFDRWDLPL
SDMYTPYVFPSENGLRCGTRELNYGPHQWRGDFQFNISRYSQQQLMETSHRHLLHAEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(23874.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FFIMQLVGQVPAALWVIFGEDRFRWSATMIGLSLAVFGILHALAQAFVTGPATKRFGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QLQGSLAALTSLTSITGPLIVTAIYAASASTWNGLAWIVGAALYLVCLPALRRGAWSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="tetR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KQAIIAGMAADALGYVLLAFATRGWMAFPIMILLASGGIGMPALQAMLSRQVDDDHQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25665

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 923.2; DB 12; Pred. No. 4.4e-283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .23957)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 42529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                  38912
```

ORIGIN

20 Вþ δÃ

Q В

```
JOURNAL
MEDLINE
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CVU39285/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38191 TGCCTTAGTATTTCCTTCAAGCTTTGCC 38164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38251 CGTCGCGGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT 38192
                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38311
                                                                                                                  terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38551 GTGGCAATCATGCTGAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 38492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38671 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCCATCGTTGA 38612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901 tgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCATCTTGCCCCCGG 38252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCACAGCTC 38312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgaalagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCGTTGCTGGCATCCT 38372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9tggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCAAATTTACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 38552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttgtggcattgcaccaccagagcgtcatacagcggcttaaccagtgcgtgaccaggtggg
                                                                                                                                                                                            Submitted (24-OCT-1995) Thomas Linn, Microbiology and Immunology, University of Western Ontario, London, Ontario N6A5C1, Canada
                                                                                                                                                                                                                                                            StPierre, R.
                                                                                                                                                                                                                                                                                                                                                                                                                           Cloning vector TLF97-2. Cloning vector TLF97-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CVU39285 42530 bp DNA STOOM Vector TLF97-2, phage lambda lacz
                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                        single-copy transcriptional or translational fusions to lacz Gene 169 (1), 65-68 (1996)
                                                                                                                                                                                                                                                                                                                                             A refined vector system for the in vitro construction of
                                                                                                                                                                                                                                                                                                                                                                      St Pierre, R. and Linn, T.
                                                                                                                                                                                                                                                                                                                                                                                      artificial sequence; vectors.
1 (bases 1 to 42530)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U39285.1 GI:1066308
                                                                                                                                                                                                                                                                                                  96186904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vector, complete sequence
                                                                                                                                                                                                                                                                             (bases 1 to 42530)
                   complement(19507. .20760)
/gene="lacy"
                                                                                                              complement(19404. .19489)
                                                                         complement(19507.
/codon_start=1
                                                          /gene="lacy"
                                                                                           /note="rrnBT2 terminator"
                                                                                                                          /organism="Cloning vector TLF97-2"
/db_xref="taxon:43841"
                                                                                                                                                                                  Location/Qualifiers
                                                                         .20760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   translational fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38432
```

δÃ

1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60

```
ORIGIN
                                                                                                                                                                                                                                                                                                       BASE COUNT
                   Matches 925;
                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                    Local
                                                                Similarity
                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SLINGEMERAFE PAR PERVENENCIA GEOGRAFILM CONTROLL CONTROLL
                                                                                                                                                                                                                                                                                                                                          33603. .35451
/note="imm21 substitution"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAC53653.1"
/db_xref="GI:1066311"
/translation="MKSUNALIVILGTVTLDAVGIGLUMPVLPGLLRDIVHSDSIASH
YGVLLALYALMGFLCARVUNALIVILGTVTLDAVGIGLUMPVLPGLLRDIVHSDSIASH
YGVLLALYALMGFLCARVLGALSDRFGRRPVLLASLLGATIDYAIMATTPVLMILYAG
RIVAGITGATGAVAGAYIADITDGEDRARHFGLMSACFGVGMVAGPVAGGLLGAISLH
APFLAAAVLNGINLLLGCFLMGESHKGERRPWFLRAFMPVSSFRWARGMTIVAALMTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FFIMOLVGQVPAALMVIFGEDRFRWSATMIGLSLAVFGILHALAQAFVTGPATKRFGE
KQAIIAGMAADALGYVLLAFATRGWMAFPIMILLASGGIGMPALQAMLSRQVDDDHQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="multiple cloning site"
complement(23974. .24142)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
/product="tetracycline resistance protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(23875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SDMYTPYVFPSENGLRCGTRELNYGPHQWRGDFQFNISRYSQQQLMETSHRHLLHAEE
GTWLNIDGFHMGLGGDDSWSPSYSAEFQLSAGRYHYQLVWCQK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IELGNKRWOFNRQSGFLSOMWIGDKKQLLTPLRDQFTRAPLDNDIGVSEATRIDDNAW
VERWKAAGHYQAEAALLQCTADTLADAVLITTAHAWQHQGKTLFISRKTYRIDGSGQM
AITVDVEVASDTPHPARIGLNCQLAQVAERVNWLGLGPQENYPDRLTAACFDRWDLPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="lactose permease"
/product="lactose permease"
/product=in_id="AaC53651.1"
/product=in_id="AaC53651.1"
/product=in_id="AaC53651.1"
/db_xref="Gi:1066309"
/db_xref="Gi:1066309"
/translation="MYYLKNTNEWMFGLFEFFYFFIMGAYFDFFFIHLHDINHISKSD
/TGIIFAAISLESLEFOPLFGLLSDKLGLKKYLLHIITGMLVMFAPFFIFIFGPLLQYN
ILVGSIVGGIYLGFCFNAGAPAVEAFIKVSRRSNFEFGGRARMFGCVGWALCASIVGI
METINNOPVFWIGSGGALILAVLLFPAKTDAPSSATVANAVGANHSAFSKLALELFG
QPKLWFLSLYVIGVSCTYDVFDOOFANFFTSFFATGEOGTRVFGYVTTMGELLNASIM
FFAPLIINRIGGKNALLLAGTIMSVRIIGSSFATSALEVVILKTLHAFEVPFLLVGCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="tetR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24476. .25666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="rrnBT1 terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="tetR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="beta-galactosidase"
/protein_id="AAC53652.1"
/db_xref="GI:1066310"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(20812.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    has been removed by an uncharacterized mutation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(20812. .23859)
                                                                                                                                                                                                                                                                                        10533 c 11615 g 10082 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation-"VVLQRRDWENPGVTQLNRLAAHPPFASWRNSEEARTDRPSQQLR/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="lac2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TLISVFTLSGPGPLSLLRRQVNEVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KYITSQFEVRFSATIYLVCFCFFKQLAMIFMSVLAGNMYESIGFQGAYLVLGLVALGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="EcoRI site normally present at the 3' end of lacz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QGSLAALTSLTSITGPLIVTAIYAASASTWNGLAWIVGAALYLVCLPALRRGAWSR
                                                      98.8%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . 25666
              0; Mismatches
                                                 Score 923.2; DB 12
Pred. No. 4.4e-283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .>23859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 23958)
                                                                                             DB 12;
                                                                                                                                                                                                                                                                                        8 others
    Indels
                                                                                             Length 42530;
0; Gaps
    0
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                          Вр
                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39092 AAACGGCAGGTTGTTAGCGCGACCTCCTGCCACCGCTTTCACGAAGGTCATGTGTA 39033
                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38972 TGGGTTGTGCTGTGGGGGGGGGGGATGACGCTGTACGCATTTGGTGATCCGGTTCTGC 38913
                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38912 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 38853
                                                                                                   CVU39286/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38852 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAAC 38793
            KEYWORDS
                           VERSION
                                         ACCESSION
                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38732 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 38673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38792 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGGATTGCATTTTGCAGACCTC 38733
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38672 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCATCGTTGA 38613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 tgggttgtgctgttgctggggcggcgatgacgcctgtacgcatttggtgatccggttcttgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38612 GTCAAATTTACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 38553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38552 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 38493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 tottcacgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                  38492 TTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG 38433
                                                                                                                                                                                                                                                                                                                                38432 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 38373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                 38252 CGTCGCGGCACTACGGCAATAATCCGCCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT 38193
                                                                                                                                                                                                                                                                         38312 TGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCATCTTGCCCCCGG 38253
                                                                                                                                                         38192 TGCCTTAGTATTTCCTTCAAGCTTTGCC 38165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                          661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                           781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 840
                                                                                                                                                                                     901 tyccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                841 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                      CVU39286 42531 bp DNA SYN 13-APR-1996 CVU39286 TLF97-3, phage lambda lacZ translational fusion
 Cloning vector TLF97-3.
                            U39286.1 GI:1066312
                                                         vector, complete sequence
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                         gene
                                          CDS
                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cloning vector TLF97-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                single-copy transcriptional or translational fusions to lacz gene 169 (1), 65-68 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A refined vector system for the in vitro construction of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    artificial sequence; vectors.
1 (bases 1 to 42531)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (24-OCT-1995) Thomas Linn, Microbiology and Immunology, University of Western Ontario, London, Ontario N6A5C1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Stpierre, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96186904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 42531)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POPYPTENPTGCYSLTPNUDESWLOGGOTR II PDGVNSAPHLWCNGRWYCYGODSRUP
PPFYPTENPTGCYSLTPNUDESWLOGGOTR II PDGVNSAPHLWCNGRWYCYGODSRUP
SEFDLSAFLRACENRLAVMYLRWSDGSYLEDQDMWRMSG I FRDVSLLHKPTTO ISDFH
SEFDLSAFLRACENRLAVMYLRWSDGSYLEDQDMWRMSG I FRDVSLLHKPTTO ISDFH
SEFDLSAFLRACENRLAVMYLRWSDGSYLEDQDMWRMSG I FRDVSLHKPTO I IDERGG
SEFDLSAFLRACENRLAVEN START 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /Protein_id="AAC33654.1"

/protein_id="AAC33654.1"

/protein_id="AAC33654.1"

/db_xref="GI:1063313"

/translation="MYYLKNINEWMEGLEFEFYFEIMGAYFPFFPIMLHDINHISKSD
/translation="MYYLKNINEWMEGLEFKYLLWIITGML/MFAPFFIFIFGPLLQYN
/translation="MYYLKNINEWMEGLEFKYLLWIITGML/MFAPFFILQYN
TGIIFAAISLESLLFQPLFGLLSDKLGLRKYLLWIITGGRARMFGCYGWALCASIVGI
TGIIFAAISLFSLLFQPLFGLLSDKLGLRKYLSRFEFGRARMFGCYGWALCASIVGI
TGIIFAAISLFSLLFQPLFGLLSDKLGLRKYLLWIITGGRAWINGASIVGN
TGIIFAAISLFSLLFQPLFGLLSTAITGASTAITGASTAVANAVGANHASAFSLKLALELFR
HINGSIYGGTAVITGGRAWINGATAWAIGF
FEAPPLIINRIGGKNALLLAGTINSVRIIGSSFAFATGAGTAVILKTLHMFEVPFLLVGCF
FEAPPLIINRIGGKNALLLAGTINSVRIIGSSFAFATGACTAVTLKTLHMFEVPFLLVGCF
FEAPPLIINRIGGKNALLLAGTINSVRIIGSSFAFATGACTAVTLKTLHMFEVPFLLVGCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Cloning vector TLF97-3"
/db_xref="taxon:43842"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(19507. .20760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(19404.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(19507. .20760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="rrnBT2 terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="lacy"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="lactose permease"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="lacy"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="beta-galactosidase"
/product="deta-galactosidase"
/protein_id="AAC53655.1"
/protein_id="AAC53655.1"
/protein_id="AAC53655.1"
/protein_id="AAC53655.1"
/product="beta-galactosidase"
/product="beta-galactosida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TLISVFTLSGPGPLSLLRRQVNEVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(20812. .>23859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(20812. .23859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KYITSQFEVRFSATIYLVCFCFFKQLAMIFMSVLAGNMYESIGFQGAYLVLGLVALGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              has been removed by an uncharacterized mutation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="lacz"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="EcoRI site normally present at the 3' end of lacz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                  GTWLNIDGFHMGIGGDDSWSPSVSAEFQLSAGRYHYQLVWCQK"
                                                                                                                                                                                                                                                                                                                                                                                                                                 AITVDVEVASDTPHPARTGLNCQLAQVAERVNWLGLGPQENYPDRLTAACFDRWDLPL
SDMYTPYVPPSENGLRCGTRELNYGPHQWRODFQFNISRYSQQQLMETSHRHLLHAEE
                                                                                                                                                                                                                                                                                                                             complement(23876.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERWKAAGHYQAEAALLOCTADTLADĀVLITTAHĀWQHQGKTLF1SRKTYRIDGSGOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IELGNKRWOENROSGELSOMWIGDKKOLLTPLRDOETRAPLDNDIGVSEATRIDPNAW
                                                                                                                                                                                                                                             complement(23975.
                                                    /gene="tetR"
24477. 25667
                                                                                                                                                                                              /note="rrnBT1 terminator"
                                                                                                                                                                                                                                                                                  /note="multiple_cloning_site"
/gene="tetR"
                                                                                                                                                              .25667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .19489)
                                                                                                                                                                                                                                                                                                                                                                  .23959)
                                                                                                                                                                                                                                                                             .24143
```

```
38433 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 38374
                                                                                                                                            38493 TITTOTGGCATTGCACCACCAGCGGCTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG 38434
                                                                                                                                                                                                                             38553 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 38494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                  661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                           38613 GTCAAATTTACCCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 38554
                                                                                                                                                                                                                                                                                                                                                                                              38673 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCATCGTTGA 38614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38733 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 38674
721 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactcttccccacactc 780
                                                                                                                                                                601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38793 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTC 38734
                                                                                                                                                                                                                                                   541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38853 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAAC 38794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 925; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38913 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 38854
                                                                                                                                                                                                                                                                                                                                      481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                    421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38973 TGGGTTGTGCTGTTGCTGGGGGGGGGGGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC 38914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361 tetgeetgegatggttggagtteeagaegataegtegaagtgaecaaetaggeggaateg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39093 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 39034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 tetteaegattategaeteaatgetettaeetgttgtgeagatataaaaaateeegaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 ttocggtattogcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10292 a 10534 c 11615 g 10082 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="tetracycline resistance protein"
/protein_id="AAC53656.1"
/protein_id="AAC53656.1"
/db_xref="g1:1066315"
/translation="MKSNNALIVILGTVTLDAVGIGLVMPVLPGLLRDIVHSDSIASH
/translation="MKSNNALIVILGTVTLDAVGIGLATIVALMATTPVLWILYAG
YGVLLALYALMQFLCAPVLGALSDRFGRRPVLLASLLGATIVALMATTPVLWILYAG
RIVAGITGATGAVAGAYIADITDGEDRARHFGLMSACFGVGNVAGPVAGGLLGAISLH
RIVAGITGATGAVAGAYIADITDGEDRERBPLRAFNPLRAFNPVSFRWARGMTIVAALMVY
KQAIIAGMAADALGYVLLAFATRGWMAFPIMILLASGGIGMALAQAFLYGDATKREGE
KQAIIAGMAADALGYVLLAFATRGWMAFPIMILLASGGIGMALAGAMLSRQVDDDHQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="imm21 substitution"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QGSLAALTSLTSITGPLIVTAIYAASASTWNGLAWIVGAALYLVCLPALRRGAWSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98.8%; Score 923.2; DB 12; Length 42531; 99.7%; Pred. No. 4.4e-283; Indels 0; (ative 0; Mismatches 3; Indels 0; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .35452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
```

Ъ Qy 밁 δÃ

Db γ В ΩV В

В Qγ В γΩ В δÃ D

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CVU37692/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 38193 TGCCTTAGTATTTCCTTCAAGCTTTGCC 38166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                   yene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                  anah
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38253 CGTCGCGGCACTÁCGGCAATAATCCGCCATAAGCGAATGTTGCGAGCÁCTTGCAGTÁCCTT 38194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38313 TGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTTGCCATCTTGCCCCCGG 38254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38373 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCACAGCTC 38314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901 tgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841 cytcycgycactacgycaataatccycataaycyaatyttycyagcacttycaytacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (29-8EP-1995) Thomas Linn, Microbiology and Immunology, University of Western Ontario, London, Ontario N6A5C1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              StPierre, R. and Linn, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  artificial sequence; vectors.

1 (bases 1 to 42704)
St Pierre,R. and Linn,T.
A refined vector system for the in vitro construction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      single-copy transcriptional or translational fusions to lacz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cloning vector lambda TXF97
Cloning vector lambda TXF97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CVU37692 42704 bp DNA
Cloning vector lambda TXF97, lac2 transcriptional fusion vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U37692.1 GI:1051181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 42704)
been removed by an uncharacterized mutation"
                                                             complement(20812. .23886)
                                                                                                                                   /TEARS lation="MYLKNTNFWMFGLFFFFYFFINGAYFPFFFIWLHDINHISKSD TGIIFAAISLFSLLFQPLFGLLSDKLGLRKYLLWIITGMLVMFAFFFFFIFFQPLQYN ILVGSIVGGIYLGFCFNAGAPAVEAFIEKVSRRSNFEEFGRAMFGCVGWLLCASIVGI PKINNQFVFWLGSGCALILAVLLFFAKTDAPSSATVANAVGANHSAFSIKLALELFG QPKLWFLSLYVIGVSCTYDVFDQQFANFTSFFATGEQGTRVFGYVTTMGELLNASIM FFAPLIINRIGGKNALLLAGTIMSVRIIGSSFATSALEVVILKTLLHNFEVFFLLVGCF
                                                                                                 complement(20812 .23886)
         note="EcoRI site normally present at the end of lacz has
                                                                                                               TLISVFTLSGPGPLSLLRRQVNEVA "
                                                                                                                     KYITSQFEVRFSATTYLVCFCFFKQLAMIFMSVLAGNMYESIGFQGAYLVLGLVALGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submission
                                                                                       /gene="lacz"
                                                                                                                                                                                                                                                                /product="lactose permease"
/protein_id="AAC53645.1"
/db_xref="GI:1051182"
                                                                                                                                                                                                                                                                                                                                                                /gene="lacy"
                                                                                                                                                                                                                                                                                                                                                                                                  /gene="lacy"
                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(19404.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            removed by an uncharacterized mutation
                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="rrnBT2 terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="BamHI site normally present at this site has been
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   removed by an uncharacterized mutation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="EcoRI site normally present at this site has been
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Cloning vector lambda TXF97"
/db_xref="taxon:43300"
                                                                                                                                                                                                                                                                                                                                                                              .20760)
                                                                                                                                                                                                                                                                                                                                                                                                                .20760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      .19489
```

/transl_table=11

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                        39266 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 39207
                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           terminator
                                                                                                                                                                                                            1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                            Local Similarity
ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac
                                                                                                                                     TGGGTTGTGCTGTGGGGGGGGGGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC
                                                             tgggttgtgctgttgctgggcggctgtgcccctgtacccatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                          925;
                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="EcoRI site normally present at this site has been removed by an uncharacterized mutation" a 10570 c 11656 g 10132 t 8 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
/protein_id="AAC53647.1"
/protein_id="AAC53647.1"
/db_xref="GI:1051184"
/translation="MKSNNALIVILGTVTLDAVGIGLVMPVLPGLLRDIVHSDSIASH
/translation="MKSNNALIVILGTVTLDAVGIGLVMPVLPGLLRDIVHSDSIASH
YGVLLALYALMOFLCAFVLGALSDRFGRRPVLLASLLGATIDYAIMATTPVLMILYAG
RIVAGTTGATGAVAGAYIADITDGEDRARHFGLMSACFGVGMVAGPVAGGLLGAISLH
APFLAAAVLNGLNLLLGGFLMGESHKGERRPWPLRAENPVSSFRWARGMTIVAALMTV
                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="imm21 substitution"
39168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               removed by an uncharacterized 33777. .35625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="EcoRI site normally present at this
removed by an uncharacterized mutation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QLQGSLAALTSLTSITGPLIVTAIYAASASTWNGLAWIVGAALYLVCLPALRRGAWSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FFIMQLVGQVPAALWVIFGEDRFRWSATMIGLSLAVFGILHALAQAFVTGPATKRFGE
KQAIIAGMAADALGYVLLAFATRGWMAFPIMILLASGGIGMPALQAMLSRQVDDDHQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="tetR" 24650. .2584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="multiple cloning s
complement(24148. .24316)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tetracycline
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="rrnBT1
24650. .25840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(24049. .24132)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HRHLLHAEEGTWLNIDGFHMGIGGDDSWSPSVSAEFQLSAGRYHYQLVWCQK'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="tetR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="beta-galactosidase"
/protein_id="AAC53646.1"
/db_xref="GI:1051183"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note="Description: tetracyline resistance gene;
                                                                                                                                                                                                                                                                                          98.8%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .25840
                                                                                                                                                                                                                                                                  Score 923.2; DB 14;
Pred. No. 4.4e-283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   resistance protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        site"
                                                                                                                                                                                                                                                                                                        DB 12;
                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                        Length 42704;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   site has been
                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                    Gaps
                                         39087
                                                                                                                                                                                                                                                                    0,
```

gene

QΥ 밁 δÃ В δÃ 밁 δÃ

181

39146

121

61

Matches

```
ACCESSION
                 REFERENCE
                                                                                                                                                                                                                                                                                                                           RESULT
LAMCG/c
                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                    AUTHORS
TITLE
                                                   MEDLINE
   AUTHORS
                                                                  JOURNAL
                                                                                                                                                                                        ORGANISM
                                     PUBMED
                                                                                                                                                                                                                                                                                                                                                                                               38366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38546 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCCACAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38606 TIGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38666 TTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38726 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38966 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGGATTGCATTTTGCAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39086 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCCTTAGTATTTCCTTCAAGCTTTGCC 38339
                                                                                                                                                                                                                                                                                                                                                                                                                         tgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTCGCGGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatctttgcccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tottcacgattatcgactcaatgctcttacctgttgtgcagatataaaaaaatcccgaaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcggattgactcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTAGTAAGCGCCGCCTCTTTCATCTCACCTACCACAACGAGCGAATTAACCCCATCGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc
                                                                                                                                                                                  Bacteriophage lambda, complete genome.
J02459 M17233 M24325 V00636 X00906
J02459.1 G1:215104
DNA-binding protein; circular; coat protein; complete genome; origin of replication; repressor; unidentified reading frame. bacteriophage lambda.
bacteriophage lambda
Wu, R. and Taylor, E
                                                            The Journal of biological chemistry. 246 (16), 5120-5139 (1971)
                                                                       Lebowitz,P., Weissman,S.M. and Radding,C.M.
Nucleotide sequence of a ribonucleic acid transcribed in vitro from
lambda phage deoxyribonucleic acid
                                  4936723
                                                                                                                                                                      Viruses;
                                                                                                                                Lambda phage group. (bases 44588 to 44780)
                                                                                                                                                                                                                                                                                                            LAMCG
                (bases 1 to 12)
                                                                                                                                                                 dsDNA viruses, no RNA stage; Tailed
                                                                                                                                                                                                                                                                                                       48502 bp
                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                         circular
                                                                                                                                                                 phages; Siphoviridae;
                                                                                                                                                                                                                                                                                                         31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                          38367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 38607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39027
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                         JOURNAL
                                                                                                                                                                                                                                                                                                MEDLINE
                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PUBMED
                                                                                                                                     PUBMED
                                                                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                         10 (bases 44588 to 44773)
Sklar,J., Yot,P. and Weissman,S.M.
Sklar,J., Yot,P. and Weissman,S.M.
Determination of genes, restriction sites, and DNA sequences surrounding the 6S RNA template of bacteriophage lambda proceedings of the National Academy of Sciences of the United States of America. 72 (5), 1817-1821 (1975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Weigel, P.H., Englund, P.T., Murray, K. and Old, R.W. The 3'-terminal nucleotide sequences of bacteriophage lambda DNA proceedings of the National Academy of Sciences of the United States of America. 70 (4), 1151-1155 (1973)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nucleotide sequence analysis of DNA. II. Complete nucleotide sequence of the cohesive ends of bacteriophage lambda DNA Journal of molecular biology. 57 (3), 491-511 (1971) 71209066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kleid, D.G., Agarwal, K.L. and Khorana, H.G.
The nucleotide sequence in the promoter region of the gene N in bacteriophage lambda
The Journal of biological chemistry. 250 (14), 5574-5582 (1975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (in) FOX.C.F. and Robinson,W.S. (Eds.);
VIRUS RESEARCH. PROCEDINGS OF 1973 ICN-UCLA SYMPOSIUM: 533-544;
Academic Press, New York (1973)
6 (bases 37945 to 38027)
Maniatis,T., Ptashne,M., Backman,K., Kield,D., Flashman,S.,
Jeffrey,A. and Maurer,R.
Recognition sequences of repressor and polymerase in the operators
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    States of America. 73215915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Imada,M. and Tsugita,A.
Amino acid sequence of lambda phage endolysin
Nature New Biol. 233, 230-231 (1971)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dahiberg, J.E. and Blattner, F.R. In vitro transcription products of lambda DNA: Nucleotide sequences \Gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Maniatis, T., Jeffrey, A. and Kleid, D.G.
Nucleotide sequence of the rightward operator of phage
Proceedings of the National Academy of Sciences of the
States of America. 72 (3), 1184-1188 (1975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence of the promoter-operator proximal region leftward RNA of bacteriophage lambda Nucleic acids research. 2 (9), 1441-1458 (1975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dahlberg, J.E. and Blattner, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of bacteriophage lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and regulatory sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4515613
Deletions of lambda phage locating a prm mutation within the rightward operator proceedings of the National Academy of Sciences of the United States of America. 73 (3), 712-716 (1976)
                                                                                                                                                                               11 (bases 37905 to 37989)
Walz, A., Pirrotta, V. and Ineichen, K.
Lambda repressor regulates the switch between
Nature. 262 (5570), 665-669 (1976)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75185528
                                                                                         Smith, G.R.,
                                                                                                                                                            16267718
                                                                                                                                                                                                                                                                             1098044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 45493 to 45963)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 35583 to 35600)
                                                                                                              (bases 37946 to 38039)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 37945 to 38018)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 38597 to 38672)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 35434 to 35618)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (2), 109-113 (1975)
                                                                                           Eisen, H., Reichardt, L.
                                                                                                and Hedgepeth, J
                                                                                                                                                                                                              PR
                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of
                                                                                                                                                                                                           Prm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            United
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                   REFERENCE
                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                    JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                MEDLINE
                                                                  JOURNAL
                                                                                                 TITLE
                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
                                                                                                                   AUTHORS
                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                     PUBMED
                                  PUBMED
                                                                                                                                                  PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1062780
13 (bases 35578 to 35667; 37903 to 38027)
13 (bases 35578 to 35667; 37903 to 38027)
Ptashne,M., Backman,K., Humayun,M.Z., Jeffrey,A., Maurer,R.,
Meyer,B. and Sauer,R.T.
Autoregulation and function of a repressor in bacteriophage
Science. 194 (4261), 156-161 (1976)
76271154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nature. 2
78071724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Journal c
77209970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Humayun, Z., Jeffrey, A. and Ptashne, M.

Completed DNA sequences and organization of repressor-binding sites in the operators of phage lambda (2) 265-277 (1077)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     909767
19 (ba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nature. 2
78071823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scherer,G., Hobom,G. and Kossel,H.
DNA base sequence of the po promoter region of phage lamdba
Nature, 265 (5590), 117-121 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science.
77258934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Landy, A. and ROSS, w. Viral integration and excision: structure Science. 197 (4309), 1147-1160 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Davies,R.W., Schreier,P.H. and Buchel,D.E. Nucleotide sequence of the attachment site of Nature, 270 (5639), 757-760 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA sequence at the end of the cI gene in bacteriophage lambda Nucleic acids research. 4 (7), 2137-2143 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence of Cro gene of bacteriophage lambda Nature. 270 (5634), 274-275 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14 (bases 35578 to 35667)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            959843
                                                                                                                                                                                  Adhya,S. and Gottesman,M. Control of transcription termin Annual review of biochemistry.
                                                                                                                                                                                                                                                   Sklar,J.L.
Structure and function of synthesis of prokaryotic F Thesis (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                   Blattner, F.R
                                                                                                                                                                                                                                                                                                                                                                                                                                 Denniston-Thompson, K., Moore, D.D., Kruger, K.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Humayun,Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18 (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      593399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Roberts, T.M., Shimatake, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         834253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77100320
24 (bases 37938 to 38016; 35589 to 35666) Flashman, S.M.
                                                                                                                 23 (bases 13 to 72; 48391 to 48502) Nichols, B.P. and Donelson, J.E.
                                                                                                                                                                                                                                                                                                                                                                                                    Physical structure of the replication origin
                                                                                                                                                                                                                                                                                                                                                                                                                                                      20 (bases 39062 to 39170)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      331474
                                  666898
                                                                Journal of virology. 26 (2),
                                                                                                     178-Nucleotide
                                                                                                                                                                    78234064
                                                                                                                                                                                                                                                                                                                   21 (bases 44467 to 44807)
                                                                                                                                                                                                                                                                                                                                      929187
                                                                                                                                                                                                                                                                                                                                                                      Science.
                                                    78197067
                                                                                                                                                                                                                                                                                                                                                      78054731
                                                                                   lambda DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 38610 to 38732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 27616 to 28935)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 38041 to 38241)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 27617 to 27934)
                                                                                                                                                                                                                                     (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of molecular biology. 112 (2), 265-277 (1977)
                                                                                                                                                                                                                                                                                                                                                                    198 (4321), 1051-1056 (1977)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37206 to 37263; 37914 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jeffrey, A. and Ptashne, M
                                                                                                   sequence surrounding the cos site
                                                                                                                                                                                                                                                                        f two
RNAs
                                                                                                                                                                                                         termination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brady,C.
                                                                                                                                                                                                                                                                                       regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37970)
                                                                                                                                                                                         967-996 (1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                         of DNA controlling the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rosenberg, M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of the lambda att sites
                                                                                                                                                                                                                                                                                                                                                                                                           of bacteriophage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bacteriophage lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           coliphage lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                          Furth, M.E.
                                                                                                        of bacteriophage
```

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                             дb
                                                                                                                                                                                                                                                                                              Qy
                                                                          Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45064 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 45005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44944 TGGGTTGTGCTGTGCTGGGCGGCGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGC 44885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44824 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAAC 44765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44884 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 44825
                                                                      421 gtagtaagegeegeetettteateeteactaecaeaaegagegaattaaeceategttga 480
| 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 1
                                                                                                                                                                                                                                                                                                                                                                         44764 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCAGTTTTGCAGACCTC 44705
                                                                                                                                                                                                                            44704 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 44645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 tottoacgattatcgactcaatgotottacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                   301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                     361 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mutational analysis of the operators of bacteriophage lambda Molecular & general genetics : MGG. 166 (1), 61-73 (1978)
481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Shimatake, H., Brady, C. and Wulff, D.L. shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Court, D., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Shimatake, H., Brady, C. and Wulff, D.L. rosenberg, M., Shimatake, H., S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nucl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schwarz, E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78135462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lambda DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA sequence of the bacteriophage gama cI gene Nature. 276 (5685), 301-302 (1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    78135463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in bacteriophage lambda DNA
Nucleic acids research. 5 (9), 3141-3156 (1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Davies,R.W., Schreier,P.H. and Buchel,D.E. Determination of the endpoints of partial deletion mutants of the attachment site of bacteriophage lambda by DNA sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nucleotide sequence of the O gene and of the origin of replication
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79053284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29 (bases 29711 to 29811; 31043 to 31058)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 37990 to 38982)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98.8%;
h
Similarity 99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         warz,E., Scherer,G., Hobom,G. and Kossel,H. leotide sequence of cro, cII and part of the O gene in phage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 37224 to 37940)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 38597 to 39688)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272 (5652), 410-414 (1978)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 923.2; DB 7; Length 48502; pred. No. 4.4e-283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
```

δõ

```
γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U02453/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44524 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 44465
                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44464 TTTGTGGCATTGCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG 44405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44404 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 44345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44344 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCACAGCTC 44285
                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44224 CGTCGCGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTT 44165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                   FEATURES
                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 840
                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                841 cqtcqcqgcactacqgcaataatccqcataaqcqaatqttqcqaqcacttqcaqtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901 tgccttagtatttccttcaagctgcccc 928
Matches
      Best Local 511
                           Query Match
                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cloning vector lambda EMBL3, right arm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           U02453.1 GI:413819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cloning vector lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cloning vector lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                               artificial sequence; vectors.
                                                                                                                                                                  Submitted (07-OCT-1993) Paul A. Kitts, CLONTECH Laboratories, Inc., 2020 East Meadow Circle, Palo Alto, CA 94303, USA 1020 East Meadow Circle, Palo Alto, CA 94303, USA 1020 East Meadow Circle, Palo Alto, CA 94303, USA 1020 East Meadow Circle, Palo Alto, CA 94303, USA 1020 East Meadow Circle, Palo Information in the sequence of their sources. If you suspect databases, published literature and other sources. If you suspect there is an error in this sequence, please contact CLONTECH's there is an error in this sequence, please contact CLONTECH's 1020 East Meadow Carlot (1415) 424-8222 or (800) 662-2566, Technical Service Department at (415) 424-8222 or (800) 662-2566, extension 3 or E-mail TECH@CLONTECH.COM.
                                                                                                                                                                                                                                                                                                                                       Lambda replacement vectors carrying P
J. Mol. Biol. 170 (4), 827-842 (1983)
                                                                                                                                                                                                                                                                                                                                                                       2 (bases 1 to 9170)
Prischauf, A.M., Lehrach, H., Poustka, A. and Murray, N.
                                                                                                                                                                                                                                                                                                                                                                                                                   CLONTECH Vectors On Disc version 1.3
                                                                                                                                                                                                                                                                                                                         84064856
                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 9170)
                  Similarity
                                                                                                                                                                                                                                                                                                          (bases 1 to 9170)
                                                                                               2534 a
     Conservative
                                                                                               /organism="Cloning vector lambda EMBL3"
/db_xref="taxon:31783"
/db_xref="taxon:32783"
1996 c 2251 g 2389 t
                                                                                                                                                            Location/Qualifiers
                           98.7%;
99.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL3
                0; Mismatches
                              Score 921.6; DB 12
Pred. No. 1.4e-282;
                                                                                                                                                                                                                                                                                                                                                                         polylinker sequences
                                                    DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAS
                              Indels
                                                       Length 9170;
                                 0
```

```
KEYWORDS
                 SOURCE
                                                     ACCESSION
                                                                  DEFINITION
                                                                                         XXU02427/c
                                                                                  LOCUS
                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                          4832 TGCCTTAGTATTTCCTTCAAGCTTTGCC 4805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Б
                                                                                                                                                           Ъ
                                                                                                                                                                                                          4952 TGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCATCTTGCCCCCGG 4893
                                                                                                                                      901 tgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                           5012 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCACAGCTC 4953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γ
                                                                                                                                                                                                                                                                                                          5072 TTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCT 5013
                                                                                                                                                                                                                         781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 840
                                                                                                                                                                                                                                                                        721 tgaatagoogacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 780
                                                                                                                                                                                                                                                                                                                                                          5132 TTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG 5073
                                                                                                                                                                                                                                                                                                                                                                                                          5192 GTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 5133
                                                                                                                                                                                                                                                                                                                         661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5312 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCCATCGTTGA 5253
                                                                                                                                                                                                                                                                                                                                                                                                                        541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5372 TCTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 5313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421 gtagtaagcgccgcctctttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5432 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTC 5373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5492 TOTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAAATCCCGAAAC 5433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 totgootgogatggttggagttocagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5552 TTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 5493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5612 TEGETTETECTETTECTEGECEGECEATGACGCCTGTACGCATTTTGGTGATCCGGTTCTGC 5553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 tottoacgattatcgactcaatgotottacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cloning vector lambda EMBL3 SP6/T7.
                               U02427.1 GI:413793
                                            Cloning vector lambda EMBL3 SP6/T7, right arm.
                                                                           XXU02427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 aaaggoogcagogtaactattactaatgaattcaggacagacagtggotacggotcagtt 120
                                                                  9205 bp
```

В Ş Дb δ Ъ Qy B γ DЪ

```
Qγ
                                                                                                                      B
                                                                                                                                               Qy
                                                                                                                                                                            밁
                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                            5167 TTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGG 5108
                                                                                  5227 GTGGCAATCATGCTGGTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTC 5168
661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                      5287 GTCAAATTTAACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCC 5228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                            601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                            5347 GTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCATCGTTGA 5288
                                                                                                 541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                  5407 TOTGCCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCG 5348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 924;
                                                                                                                                                      481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                            421 gtagtagggggggcgctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                       5467 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTC 5408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                           5527 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGGAAAC 5468
                                                                                                                                                                                                                                                                 361 tetgeetgegatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                      301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                             5647 Tegerrerecrecredecececeargacecraracecarricerearcecarrerec 5588
                                                                                                                                                                                                                                                                                                                                                                          241 tetteaegattategaeteaatgetettaeetgttgtgeagatataaaaaateeegaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (07-OCT-1993) Paul A. Kitts, CLONTECH Laboratories, Inc.,
1020 East Meadow CLICe, Palo Alto, CA 94303, USA
This sequence has been compiled from information in the sequence
databases, published literature and other sources. If you suspence
there is an error in this sequence, please contact CLONTECH's
Technical Service Department at (415) 424-8222 or (800) 662-2566,
extension 3 or E-mail TECH@CLONTECH.COM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cloning vector lambda EMBL3 SP6/T7 artificial sequence; vectors. I (bases 1 to 9205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLONTECH Vectors On Disc version 1.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 9205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Cloning vector lambda EMBL3 SP6/T7"
/db_xref="taxon:31784"
2002 c 2253 g 2404 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98.7%; Score 921.6; DB 12; 99.6%; Pred. No. 1.4e-282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 9205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
```

```
οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LAMLTPR/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                           ρy
                                                                                                                                                                                                               Вþ
                                                                                                                                                                                   Qy
                                                                                                                                QΥ
                                                                                                                                                            밁
                                                                           δÃ
                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                    밁
                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5047 TGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCACAGGCTC 4988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4987 TGTTTTGGCAATATCAACCGCCACGGCCTGTACCATGGCAATCTCTGCATCTTGCCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgccatcttgcccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901 tgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                     126 tgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgcttccg 185
                                                                                                                                                                                                                676 TGTGCTGTTGCTGGGCGGCGATGACGCCTGTACGCATTTGGTGATCCGGTTCTGCTTCCG
66 ccgcagcgtaactattactaatgaattcaggacagacagtggctacggctcagtttgggt 125
                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctccccccacagctc 780
                                                      496 TGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTCTCTGC 437
                                                                   TGCCTTAGTATTTCCTTCAAGCTTTGCC 4840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                          ACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAATCCCGAAACCGTTA 497
                                                                                                                                                             GTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAAGCTCGCCGACTCTTC 557
                                                                                                                                                                          gtattogottaattoagoacaaoggaaagagoactggotaaccaggotogocgactotto 245
                                                                                                                       acgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaaccgtta 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteriophage lambda late transcription promoter region DNA.
                                                                                                                                                                                                                                                                                                                              728;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleotide sequence of a bacteriophage lambda DNA fragment containing the late transcription promoter P-R Bloorg. Khim. 5, 1873-1875 (1979)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Petrov, N.A., Karginov, V.A., Mikryukov, N.N., Serpinsky, O.I. Kravchenko, V.V. and Vasilenko, S.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bacteriophage lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           M38294.1 GI:215179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAMLTPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lambda phage group.
1 (bases 1 to 735)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteriophage lambda DNA.
                                                                                                                                                                                                                                                                                                                                        h 70.4%;
Similarity 98.2%;
                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae;
                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10710"
173 c 192 g
                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="bacteriophage lambda"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         735 bp
                                                                                                                                                                                                                                                                                                                                            Score 657.4; DB 7; Length 735; Pred. No. 2.9e-198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            UNA
                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4928
                                                                                                                                                                                                                                                                                                                                              6
```

밁

۲.

```
γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAMQPR/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                            ORIGIN
                                                                                                                                                                       BASE COUNT
δÃ
                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                      Matches
                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486 atttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggc 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546 aatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgt 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                316 A-TTACCCAATTTTATTCAATAAGTCA--ATCATGCCGTTAATATG-TGCCATCCGTGGC 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        260 GATCATGCTGCTAACGTGTGATCGCATTCAAAATGTTGTCTGCGATTGACTCTTTGT 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140 TAAGGTTTGGGATTAGCATCCTCACAGCGCGATA-GCTGCGCTTGCTGGCATCCTTGAAT 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                786 tgg-caatatcaaccgcacgg 805
                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                            516 tcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattca 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         taaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatccttgaat 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGGTTGGG 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtgggttggg 665
                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGACAATATCAGCCGCGCGG 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M38285.1 GI:215194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteriophage lambda Q protein gene, complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bacteriophage lambda
Viruses; dsDNA viruses, no RNA stage: Tailed phages; Siphoviridae;
                                                                                                                                                                                                                                                                                                                                                                                            containing gene Q
Bioorg. Khim. 8, 561-563 (1982)
                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleotide sequence of the bacteriophage lambda DNA region
                                                                                                                                                                                                                                                                                                                                                                                                                                       Petrov, N.A., Se
Kravchenko, V.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteriophage lambda DNA.
                                                                                         464;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lambda phage group.
1 (bases 1 to 751)
                                                                                                       Similarity
                                                                                          Conservative
                                                                                                                                                                                        YRAVTMLIPHLTOPTWSRTVKPLYDALVVQCHKEESIADNILHAITR"
                                                                                                                                                                                                      AGFGMAAFCGKHELSONDKOKAINYLMOFAHKVSGKYRGVAKLEGNTKAKVLOVLATL
PYADYCRSGATEGARCRDCHGTGRAVDIAKTELWGRVVEKECGRCKGVGYSRMPASAA
                                                                                                                                                                                                                                    /transl_table=11
/protein_id="AAA32253.1"
/protein_id="AAA32253.1"
/db_xref="GI:215195"
/translation="MKLESVAKFHSPKSPMMSDSPRATASDSLSGTDVMAAMGMAQSQ
                                                                                                                                                                                                                                                                                                                                     /organism="bacteriophage lambda"
/db_xref="taxon:10710"
                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                            /note="protein Q"
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Serpinski,O.I., Mikryukov,N.N., Karginov,V.A. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        751 bp
                                                                                                          48.0%;
                                                                                                                                                                                  168 c
                                                                                             0;
                                                                                                          Score 448.2; DB 7; Length 751; Pred. No. 1.7e-131;
                                                                                                                                                                                209 g
                                                                                               Mismatches
                                                                                                     Indels
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIHK022Q/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
    stem_loop
                         misc_feature
                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                392 GCCAATCTCTGCATCTTGCCCCCGGCGTCGCCACTACGGCAATAATCCCGCATAAGGCA 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               816 ggcaatctctgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcga 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     452 TCTCGACAACTCTCCCCCACAGCTCTGTTTTGGCAATATCAACCGCACGGCCTGTACCAT 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      512 GÁTATGCTGCGCTTGCTGGCATCCTTGAATAGCCGACGCCTTTGCCATCTTCCGCCACTCTT 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 756 tetegacaaeteteeeceaeagetetgttttggeaatateaaeegeaeggeetgtaeeat 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     696 gatatgctgcgcttgctggcatccttgaatagccgacgcctttgcatcttccgcactctt 755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        572 GCTTAACAGTGCGTGACCAGGTGGGTTGGGGTAAGGTTTGGGATTAGCATCGTCACAGCGC 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcttaacagtgcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgc 695
                                                                                                                                                                                                                                                                                                The Escherichia coli rpoB60 mutation blocks antitermination by coliphage HK022 Q-function
                                                                                                                                                                                                                                                                                                                                    Atkinson, B.L. and Gottesman, M.E
                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Direct Submission
Submitted (05-SEP-1991) B.L. Atkinson, Columbia Univ College of
Physicians and Surgeons, 701 West 168th Street, New York NY 10032,
                                                                                                                                                                                                                                                                                                                                                                                                                                      X63309.1 GI:15751
antitermination block; Q gene; rpoB60; rpoB60 mutation.
Enterobacteria phage HK022.
Enterobacteria phage HK022
Viruses; dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                    Atkinson, B.L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Coliphage HKO22 Q gene with late antitermination function.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIHK022Q
                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 805)
                                                           /db_xref="SpPrembl:002582"
/translation="mrlesvakfhspkspmmsdsprttasdslsgtdvmaamgmaqsq
Agfgmaafcgkhelsqndkgkainylmqfahkysgkybgvaklegnykakvlqylatf
Ayadycrsaatpgarrbdchgtgravdtakteqmgrvvekecgrckgygysrmpasaa
                                                                                                                                                                                                                                                                                               Biol. 227 (1), 29-37 (1992)
/standard_name="pR'"
766. .788
                                                      YRAVTMLIPNLTQPTWSRTVKPLYDALVVQCHKEESIADNILNAVAR"
                                                                                                                       /transl_table=11
/protein_id="CAA42854.1"
/db_xref="GI:15752"
                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                  /gene="Q"
                                                                                                                                                                                                           /gene="Q"
                                                                                                                                                                                                                                 /db_xref="taxon:10742"
                                                                                                                                                                                                                                       /organism="Enterobacteria phage HK022"
                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                 . 657
                                                                                                                                                                                                                                                                                                                                                                                                                               to 805)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              805 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-OCT-1992
                                  FEATURES
                                                                                                                            PUBMED
REFERENCE
                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                  Locus
                                                                                                                                                                                                                                                                                                                                                            AF069308/c
                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                        JOURNAL
                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                     MEDLINE
                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                    source
```

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                337 ATGTTGCGAGAACTTGCAGTACCTTTGCCTTAGTATTTCCTTCAAGCTTTGCC 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    876 atgttgcgagcacttgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           397 GCCAATCTCTGCATCTTGCGCCCGGTGTCGCGGCACTACGGCAATAATCCGCATAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  816 9gcaatctctgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcga 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         457 TCTCGACAACTCTCCCCCACTGCTCTGTTTTGGCAATATCAACGGCCCGGCCAGTACCGT 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                756 totogacaactotococoacagototgttttggcaatatcaaccgcacggcctgtaccat 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        517 GATATGCGGCGCTTGCTGGCATCCTGGAATAGCCGACGCCTTTGCCATCTTCCGCCACTCTT 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  696 gatatgetgegettgetggeateettgaatageegaegeetttgeatetteegeaetett 755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        577 GCTTAACAGTGCGTGACCAGGTGGGTTGGGGTAAGGTTTGGGATTAGCATCGTTACAGCGC 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        637 AAATGTTGTCTGCGATTGACTCTTCCTTGTGGCATTGCACCACCAGAGCGTCATACAGCG 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            576 aaatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcg 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 516 tcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattca 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 456 aacgagcgaattaacccatcgttgagtcaaatttacccaattttattcaataagtcaata 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         757 AACGAGTGCATTTATCCATCGTTGGGTCAAATTTACCCAACTTTATTCAAAAAGTCAATA 698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                        Submitted (31-MAY-1998) Pittsburgh Bacteriophage Institute & Dept
                                                                                                           15260, USA
                                                                                                                                                                                           Juhala,R., Ford,M.E., Duda,R.L., Youlton,A., Hatfull,G.F. and
                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                  Genomic sequences of bacteriophages HK97 and HK022: pervasive genetic mosaicism in the lambdoid bacteriophages J. Mol. Biol. 299 (1), 27-51 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcttaacagtgcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgc 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCATGCCGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGCGACCGCATTCA 638
                                                                                                                                                                                                                                                                                                                                            Juhala,R.J., Ford,M.E., Duda,R.L., Youlton,A., Hatfull,G.F. and Hendrix,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                        Enterobacteria phage HK022
Viruses; dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae;
                                                                                                                                                                                                                                                              10860721
                                                                                                                                                                                                                                                                                                                                                                                                  Lambda phage group.

1 (bases 1 to 40751)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteriophage HK022, complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Enterobacteria phage HK022.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF069308.1 GI:6863111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF069308
                                                                                                             Biological Sciences, University of Pittsburgh,
                                                                                                                                                                                                                                 (bases 1 to 40751)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      229 a
                          /virion
                               /organism="Enterobacteria phage нк022"
/db_xref="taxon:10742"
                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /standard_name="tR'"
185 c 216 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40751 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46.7%; Score 436.2; DB 7; Length 805; 95.1%; Pred. No. 1.2e-127; tive 0; Mismatches 23; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           175 t
                                                                                                             Pittsburgh,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
```

```
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
/transl_table=11
/product="head portal protein"
/product="head protein"
/product="head protein"
/product="head protein"
/product="head protein"
/product="head portal product product protein"
/product="head protein"
/product="head portal product 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="terminase small subunit"
/protein_id="AAF30353.1"
/protein_id="AAF30353.1"
/db_xref="G1:686311"
/translation="MADKRIRSDSSAAAVQAMKNAAVDTIDPPSHAGLEKKAEPFWHD
/translation="MADKRIRSDSSAAAVQAMKNAAVDTIRGEERDEGLIKDLRKQI
/translation="MADKRIRSDSSAAAVQAMKNAAVDTIRGEERDEGLIKDLRKQI
VELQRTILAQREDLJAAVELANNQLYITVLKKDLRKERIRGEERDEGLIKDLRKQI
VELQRTILAQREDLJIHSHATNGESRDQKKRNQNDRDARNTKNEHQDQDDNLIAFPKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /vranslation="mtrgerylafierecivpegkligopmrldfforefilavydnp/translation="mtrgerylafierecivpegkligopmrldfforepalavk"/
flanslation="mtrgerylafierecivpegyvolaficeropalavk"/
Agtdmalisiarrofthipegkkligolecnveykalsabgktffiglespilalidetgoyrg
mynlmpklogivlityleggkkligolecnveykalsabgktffiglespilalidetgoyrg
poddeidalitaggahenpllivistocandadllshiddavkskophlychyepfyfpok
kdadiskreswlaanpalgffreskdmaroarkaghwysespifymrderysp
kdadiskreswlaanpalgtbymaregllrttpgarndltalviageaddeolydfyfpfymfopk
fisrsywelcgempinfpekwyabldsarndltaligebdltslaedbyst
flebrytpdapydywregellrttpgasydysfvabdaeiigdpdltslaedavanav
doerkdadaiglslaelyegggfkomgpavdtleslmlagvardhydltmcavnav
doerkdadaiglslaelyegggfkomgpavdtleslmlagggdfddeifreplsm"
vykdaagnrkldrskatgridgmyamtmsygaangevtegggdfddeifreplsm"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="gp1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="terminase large subunit"
/protein_id="AAF30354.1"
/db_xref="GI:6863113"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PPLPGGDVAMRQSQYVPITDLGTNKEPRNNGA" 3348. .4025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MPETYKTLSFDETEIKFTGDGKQGIFEGYASVFNNTDSDGDIIL
/translation="MPETYKTLSFDETEIKFTGDGKQGIFEGYASVFNNTDSDGDIIL
GGAFKHALANOTRKVAMEENHRWELPYGKWDSLAEDEKGLYVRGOLTPEHSGAADLK
AAMQHGTVEGHSVGFSVSKDDYTTIPTGRIFKNIQALREISVCTFPANEQAGIAAMKS
AAMQHGTVEGHSVGFSVSKDDYTTIPTGRIFKSAIKSESEGDGNEAQINALLQSIKS
UDGIETIRDVENWLRDSVGLTKSQAYGLIARFKSAIKSESEGDGNEAQINALLQSIKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /evidence=experimental
/product="head maturation protease"
/protein_id="AAF30356.1"
/db_xref="GI:6863115"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                          /product="major capsid subunit precursor"
/protein_id="AAF30357.1"
/protein_id="AAF30357.1"
/protein_id="AAF30357.1"
/protein_id="AAF30357.1"
/db_xref="GI:6863116"
/db_xref="GI:6863116"
/translation="MSELALIOXAIEESQOKMTQLFDAQKAEIESTGQVSKQLQSDLM
/translation="MSELALIOXAIEESQOKMTQLFDAQKAEIESTGQVSKQLQSDLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FPSNLGK
                                                                                                                           KVQEBLITKSGTRLFDLEGXLASGAENPGEKKSFSBRARELIKSKDGKOGTFGAKTIN
KVQEBLITKSGTRLFDLEGXLASGAENPGEKKSFSBRARELIKSKDGKOGTFGAKTIN
KVQEBLITKSGTRLFDLEGXLASGAENPGEKKSFSBRARELIKSKDGKOGTFGAKTIN
KSLGSDADSAGSLLOPMOLPGIIMPGLRRLTIRDLLAGORTSSRALEVREEVFINA
KSLGSDADSAGSLLOPMOLPGIIMPGLRRLTIRDLTAHALOSYINNRLMVGLALK
DVVABKALKPBSDITFSKOTANVKTIAHWVQASRQVVBDAPHALOSYINNRLMVGLALK
DVVABKALKPBSDITFSKOTANVKTIAHWVQASRQVBDRADITAHAIVQVTESSEFSASGIV
EBGQLLINGDOTGDNLEGLNKVATAVDTSLNATGGTRADITAHAIVQVTESSEFSASGIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="gp5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .2056
                                                                                           LNPRDWHNIALLKDNEGRYIFGGPQAFTSNIMWGLPVVPTKAQAAGTFTVGGFDMASQ
                                                  VMDRMDATYEVSREDRDNEVKNMLTILCEERLALAHYRPTAIIKGTESSGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .5185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ESEEGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
/product="gp8",
/protein_id="AAF30360.1"
/protein_id="AAF30360.1"
/db_xref="g1:6863119"
/translation="MNEQLYNELIAVIREQITAQSEQTEAISRLAESNMALCDVIIQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REQLSGGAETAQATIRVWMRATERVDKKVGKNSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="gp7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LAGELDETAEQQTYLSGKPRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="AAF30361.1"
/protein_id="AAF30361.1"
/db_xref="G1:6863120"
/translation="MQAGKLRHRITLQEPVKVQNPTTGAVINTWRDVATVRAEVSPLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6302. .6841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CSEGVNDG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AREFIAAQASQGEITTRIVIRYRAGVTRKHRILFRGAVYNIHGVLPDPKSGREYLTLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MADSVEVSLTGLESLLGKMEAVSEVTRNKAGRFALRKAANIIRD/translation="MADSVEVSLTGLESLLGKMEAVSEVTRNKAGRFALRKAANIRDLAFRVGVMGGARQYANTKANVRRARSNASRVDDPLTKEAIHKNIVASFSSKQFFRTGDLAFRVGVMGGARQYANTKANVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /evidence=not_experimental
/product="gp10"
/protein_id="AAR30362.1"
/db_xref="GI:6863121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MGKAIDRAIRLAMKKGTTA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KGRAGKTYKTSGDKGNPGGDTWYWRFLEFGTEHTSARPILRPAMNGVDNDVINVFSTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                               /evidence=experimental
/product="major tail subunit"
/product="major tail subunit"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein_id="AAF30364.1"
/protein=id="AAF30364.1"
/protein=id="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DPETKRYRYSEDVDWIVTR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="gp12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                 7797. .8282
/note="gp13"
                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .5781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .6309
```

```
KEYWORDS
                                                                                                           VERSION
                                                                                                                                     DEFINITION
                                                                                                                       ACCESSION
                                                                                                                                                                    AF335538/c
                                                                                                                                                                                       RESULT 14
                                                       ORGANISM
                                                                                                                                                                                                  36514 ATGTTGCGAGAACTTGCAGTACCTTTGCCTTAGTATTTCCTTCAAGCTTTGCC 36462
                                                                                                                                                                                                                                                             36574 GGCAATCTCTGCATCTTGCGCCCGGTGTCGCGGCACTACGGCAATAATCCGCATAAGCGA 36515
                                                                                                                                                                                                                                                                                                                            36694 GATATGCGGCGCTTGCTGGCATCCTGGAATAGCCGACGCCTTTGCATCTTCCGCACTCTT 36635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                    876 atgttgcgagcacttgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                        36754 GCTTAACAGTGCGTGACCAGGTGGGTTGGGTAAGGTTTGGGGATTAGCATCGTTACAGCGC 36695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36814 AAATGTTGTCTGCGATTGACTCTTCCTTGTGGCATTGCACCACCAGAGCGTCATACAGCG 36755
                                                                                                                                                                                                                                                                                 816 ggcaatctctgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcga 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36874 TCATGCCGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGCGACCGCATTCA 36815
                                                                                                                                                                                                                                                                                                                                             756 totogacaactotococcacagototgttttggcaatatcaaccgcacggcctgtaccat 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36934 AACGAGTGCATTTATCCATCGTTGGGTCAAATTTACCCAACTTTATTCAAAAAGTCAATA 36875
                                                                                                                                                                                                                                                                                                                                                                                                              696 gatatgctgcgcttgctggcatccttgaatagccgacgcctttgcatcttccgcactctt 755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            636 gcttaacagtgcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgc 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           576 aaatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcg 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         516 tcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattca 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        456 aacgagcgaattaacccatcgttgagtcaaatttacccaattttattcaataagtcaata 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
Viruses; dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae.
                                          Bacteriophage HK620
                                                         Bacteriophage нк620.
                                                                                       AF335538.1 GI:13517559
                                                                                                                Bacteriophage HK620, complete genome
                                                                                                                                                AF335538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                    38297 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /evidence=not_experimental
/product="lambda gpT analog"
/protein_id="AAF30366.1"
/db_xref="GI:6863125"
/translation="GKDFELSAEDEFWCELVLNGIGGRTIAEAREVLSFKESQLWAKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RERYGSLNEMLRVEWGAGLVSSMIANVNRDPKRPPFNPTDFTLHETKVKAADGPISLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="gp16"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="gp14; presumed to be expressed as the downstream placed at the presumed frameshift product; start is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=not_experimental
/product="lambda gpG analog"
/protein_id="AAF30365.1"
/protein_id="AAF30365.1"
/db_xref="G1:6863124"
/translation="MKLTLDALKESGAFTGRPVEKEITWTOGDKKTTATVYVRPMGYH
/translation="MKLTLDALKESGAFTGRPVEKEITWTOGDKKTTATVYVRPMGYH
/TATSDVLAFGGKVDGVAGRIAASICDEHGKPIFTPADITGEADPERGALDGGLTVALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAIQEVNDLGKTSSSAPKTNSGASSSSTESEAEQSPKRGKSSHSKSPNSGQSTGNDTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46.78;
95.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .10898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .8458
                                                                                                                                       DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 436.2; DB 7; Length 40751; Pred. No. 1.2e-127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                circular
                                                                                                                              PHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23; Indels
```

Qγ ДЬ Ş 망

SOURC

```
protein_bind
                                                                                                                                promoter
                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (11-JAN-2001) Life Sciences Division, Lawrence Berkeley National Laboratory, One Cyclotron Road, Berkeley, CA 94720, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Clark,A.J., Inwood,W.B., Cloutier,T. and Dhillon,T.S. Nucleotide Sequence of Coliphage HK620 and the Evolution of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Clark, A.J., Inwood, W.B., Cloutier, T. and Dhillon, T.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 38297)
Clark, A.J., Inwood, W.B., Cloutier, T. and Dhillon, T.S.
                               complement(1664..1702)
/function="phage integration"
complement(1689..1701)
/bound_moiety="cII protein"
                                                                                       /translation="MOHELOPDSLVDLKFIMADTGFGKTFIYDRIKSGDLPKAKVIHG
RARWLYRDHCEFKNKLLSRANG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 38297
                                                                                                                                                                                               /protein_id="AAK28851.1"
/db_xref="GI:13517562"
                                                                                                                                                                                                                                                                 /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                complement(1457. .1657)
/gene="hkac"
                                                                                                                                                                                                                                                                                                                                                                                                                              complement(1457. .1657)
/gene="hkac"
                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="attp core"
1441. .1463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="attp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MGKIAGKIFLTSKKHHSNOSPAASSRCLQGTPFISSLQSVPVRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(1324. .1464)
/gene="hkaB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complement(1324 .1464)
/gene="hkaB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /Product="integrase"
/product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="AAK28850.1"
/db_xref="GI:13517561"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="attp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="prophage excision"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(1224.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="attp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="attp"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NEHEWPADA I EVOLAHANGGSVRGIYNHAQYLDKRREMMQWWADWLDEKVE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(50. .1207)
/gene="int"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host="Escherichia coli H, strain 2158"
complement(join(1. .23,38289. .38297))
/note="terminator for prophage excision transcript; XIS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /function="site-specific recombination"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="hkaA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Bacteriophage HK620"
/db_xref="taxon:155148"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (2001) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . 1273)
```

gene

CDS

gene

gene

CDS

gene

CDS

gene

```
/function="promoter activation to establish lysogeny" complement(1789. .1968) /gene="hkaD" complement(1789. .1968)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(2065. .2598)
/gene="hkaE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="similar to eaG of Bacterophage P22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="unknown"
/product="unknown"
/product="iniknown"
/protein_id="aAK28853.1"
/protein_id="aAK28853.1"
/protein_id="aK17564"
/db_xref="GI:13517564"
/translation="wffTTKERIELFIKNPLDNGLTRGEQMEVARIALASLGAEPVSQ
/translation="wffTTKERIELFIKNPLDNGLTRGEQMEVARIALASLGAEPVSQ
/translation="wffTTTKERIELFIKNPLDNGLTRGEQMEVARIALASLGAEPVSQ
TYNLPELLEGMEVSIDVSTCDADLGNRYFGTYTEALELDTAKNGYILLVQDAEPNFDV
TYNLPELLEGMEVSIDVSTCDADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCDADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCDADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCADLGNRYFGTYTEALELDTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSIDVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEPNFDV
TYNLPELLEGMEVSTCADLGNRYFGTYTTAKNGYILLVGAEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(2065. .2598)
/gene="hkar"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EFVKINKESEGNEKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAK28852.1"
/db_xref="GI:13517563"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="hkaD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="unknown"
/protein_id="AAK28854.1"
/protein_id="AAK28854.1"
/db_xref="GI:13517565"
/translation="MDGQISIVRPGACDDREIRIIIRLAMGKAITALITPENLALALT
/translation="MDGQISIVRPGACDDREIRIIIRLAMGKAITALITPENLALALT
/KRANYEIKVK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(2601. .2792)
/gene="hkaf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MSCPKCGSGNIAKEKTMRGWSGDYVCCDCGYNDSKDAFGERGKN/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(2601. .2792)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GASWKPSHWMPLPEPPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(2794. .3510)
/gene="hkaG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="hkaf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="AAK28855.1"
/protein_id="AAK28855.1"
/db_xref="GI:13517566"
/translation="MSKIDYQALREKAEKATSGVWSLEYGEERFDADDALIHREVVGY
/translation="MSKIDYQALREKAEKATSGVWSLEYGEERFDADDALIHREVVGY
/translation="MSKIDYQALREKAEKATSGVWSLEYGEERKQQYIKRRDQE
LPICRIEGAHPESGFDEDFQWEQQANAEFIAAANPATVLALLDELERKQQYIKRRDQE
LPICRIEGAHPESGFDEDFQWEQQANAEFIAAANPATVLALDELERKQQYIKRRDQE
LPICRIEGAHPESGFDEGKDSKIANLTAERDALREGEMGDARHSNTRAAADIYFQLVEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="hkaG"
/note="similar to L0140 of Bacteriophage 933W and eaD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(2794. .3510)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteriophage P22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="hkaH" complement(3507. .3989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(3507. .3989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YKVSEVIAAIRAAGIRIKGE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CEIPAGGSLVEYVDDMREKLEAAEKRIAELEDREILLPERSSMLHRTDFHDDYQTVMA
                                                                                                                                                                                                                                  /product="unknown"
/protein_id="AAK28856.1"
/protein_id="AAK28856.1"
/db_xref="01:13517567"
/translation="MKOMSLIEMDGFLKGKCFPRDLKVNETNAEYLVRKFGELESKLE
/translation="MKOMSLIEMDGFLKGKCFPRDECREEFSEMEDDVFETPTT
TALRECRSAGITIDNLEAKCAKMAAENTSLKQSEKEFNDFCREEFSEMEDDVFETPTT
TALRECRSAGITIDNLEAKCAKMAAENTSLKQSEKEFNDFCREEASSYRLFADQLRKGGSQ
DAFLAEVRAQGVEMYADNLDNVADDAERGGFDYAVKFLRSEASSYRLFADQLRKGGSQ
                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="hkaH"
/codon_start=1
                                                                                          complement(3986.
/gene="hkaI"
                                                                                                                                                                       complement(3986.
/transl_table=11
/product="unknown"
                                                           /codon_start=1
                                                                                                                                  .4150)
                                                                                                                                                                                          .4150)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                          δã
                                                                             8
                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15617 AACGAGTGCATTTATCCATCGTTGGGTCAAATTTACCCAACTTTATTCAAAAAGTCAATA 15558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15557 TCATGCCGTAAAGATGTTGCCATCCGTGGCAATCATGCCGCTAACGTGTGACCGCACTCA 15498
                                                                                                                                                                                                                                                                                                                                                                  15497 AAATGTTGTCTGCGATTGACTCTTCTTGTGGCATTGCACCACCAGAGCGTCATACAGCG
                                                                                                                               15437 GCTTAACAGTGCGTGACCAGGTGGGGTTGAGTAAGGTTTGGGATTAGCATCGTTACAGCGC 15378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             456 aacgagcgaattaacccatcgttgagtcaaattttacccaattttattcaataagtcaata 515
                                                                                                                                                                                                                                                                                                                                                                                              576 aaatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcg 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 516 tcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattca 575
                                                                                                                                                                                                                                                                                    636 gcttaacagtgcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgc 695
                                              756 totogacaactotococcacagototgttttggcaatatcaaccgcacggcctgtaccat 815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    446;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(4045. .4057)
/note="tL3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAK28857.1"
/db_xref="GI:13517568"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(4161. .4457)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(4161.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LNAMWRSGKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="mrgLaynpgIlpaemIIRQRVKPMPSREELLKRNSFPSVNQNKY/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="unknown"
/protein_id="AAK28858.1"
/protein_id="AAK28858.1"
/db_xref="G1:13517569"
/translation="MPAPLYGADDPLRCSGNSVSEVLDKFRKNYDRIMSLPQETKEEK
/translation="MPAPLYGADDPLRCSGNSVSEVLDKFRKNYDRIMSLPQETKEEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(4481. .5068)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(4481. .5068)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EFRHCIWLAEKEERERIYOTSIRPFRKATYTHFPEYIDPRLRNYHSRYGAISND"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="hkaj'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene≖"hkaJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MGNVIFTYNEEAALTAGQGGFINETGAHIITITEAELKQSEKGA /translation="MGNVIFTYNEEAALTAGQGGFINETGANVHAMMGCAGIGQLTQHAVSASK KFIEFSGESDDGRKIQYLSVCYQKNDGTENKFGANVHAMMGCAGIGQTLKEKAVGKQPETI FVAPEFHGKKIGLVLQKVLTTNKKTGADSYQMEIRIPFIAQTGQTLKEKAVGKQPETI ANMVASLKDKDNRSKNVSQNHADDYGYSQNDYPPF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="unknown"
/protein_id="AAK28859.1"
/db_xref="GI:13517570"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="hkaK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(5065. .5745)
/gene="hkaL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="hkak"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="mgtatlilgesgtgkstsmrninpeeailikpigkplpekskem
LAWDARAKKGTYVTTDKWDVIVAVIKRAHEYGKRIVIYDDFOOYMSNEFMRRSSEKSF
DKFTEIGRHAMEVIKAAQDAPDDLRVYFLAHTEETPMGRVKMKTIGKMLDEKITVEGM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="unknown"
/protein_id="AAK28860.1"
/db_xref="GI:13517571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(5065. .5745)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="hkaL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(5754. .5942)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FTIVLRTLTRDDQFFFTTKNNGADTVKSPMGMFDSNEIDNDLSFVDATVCDYYGINNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HQIKENAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="hkaM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 429.8; DB 7; pred. No. 1.4e-125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .4457)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 38297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                15438
```

CDS gene

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF069529/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PUBMED
                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15197 ATGTTGCGAGCACTTGCAGCACCTTTGCCTTAGTATTTCCTTCGAGCTTTGCC 15145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15257 GACAATCTCTGCATCTTGCGCCCGGCGTCGCGGCACTACGGCAATAATCCGCATAAGCGA 15198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15317 TCTCGACAACTCTCCCCCACCATTCTGTTTTGGCAATATCAACGGCCCGGCCAGTACCGT 15258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     876 atgttgcgagcacttgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             816 ggcaatctctgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcga 875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (01-JUN-1998) Pittsburgh Bacteriophage Institute & Dept.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genetic mosaicism in the lambdoid by J. Mol. Biol. 299 (1), 27-51 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hendrix, R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genomic sequences of bacteriophages HK97 and HK022: pervasive genetic mosaicism in the lambdoid bacteriophages
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1086072]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Juhala,R.J., Ford,M.E., Duda,R.L., Youlton,A., Hatfull,G.F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteriophage HK97, complete genome. AF069529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteriophage нк97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteriophage HK97.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AF069529.1 GI:6901584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lambda phage group.
1 (bases 1 to 39732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Viruses;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF069529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 39732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            la, R.,
              /evidence-not_experimental
/product-"terminase large subunit"
/product-"terminase large subunit"
/protein_id-"AAF31098.1"
/db_xref="G1.6901595"
/translation-"MTRGERVIAFIERFCIVPEGKLIGQPMRLDPFQKDFILAVYDNP
ACTDMAILSIARRUGKTGLIAGILLAHLVGFPAVQNYQIVSGALSREQAAIVFULAVK
PUDDMAILSIARRUGKTGLIAGILLAHLVGFPAVQNYQIVSGALSREQAAIVFULAVK
PQDDFIDAITTAGGAHENPLLIVISTQAANDADLLSIWIDDAVKSKDPHIVGHVERP
KDADISKRESWLAANPALGTFRSEKDMARQAEKAGRMPSTENTFRNLNLNQRVSTVSP
FISRSVWELCGEMPINTPRKWYAGLDLSARNDLTALVIAGEADDGVWDVFPFFWTPQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submission
                                                                                                                                                                                                                                                                                                                                                          /translation="madkrirsdssaaavqamknaavdtidppshaglekkaepfwhd
NIRSKALDSWTPADLLAAVELANNQLYITVLRKDLRKEERIRGEERDEGLIKDLRKQI
                                                                                                                                                                                                        /transl_table=11
                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                      /gene="2"
                                                                                                                                                                                                                                                                                                                                          VELQRTILAQRRDLQIHSHATNGESRDQKKRNQNDRDARNTKNEHQDQDDNLIAFPKH
                                                                                                                                                                                                                                                                                                                                                                                                        /product="terminase small subunit"
/protein_id="AAF31097.1"
/db_xref="GI:6901594"
                                                                                                                                                                                                                                                                                                       /gene="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="1
50. .535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Gp1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Bacteriophage HK97"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:37554"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ford, M.E., Duda, R.L., Youlton, A., Hatfull, G.F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39732 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       University of Pittsburgh, Pittsburgh, PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-OCT-2000
```

```
terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  terminator
                                                                                                                                                                                                                                     /gene="6"
/cod-
DEPAWKVAADIPAAVKGAVLLVFADMEEHRTAOSEVQLYENAAAERMMFIHRNWRGKA
                                                                    /evidence=not_experimental
/product="gp6"
/protein_id="AAF31099.1"
/db_xref="G1:6901596"
                                                                                                                                                                                                                                                                                                                                                                                                                          /vvidence-experimental
/product="major head subunit precursor"
/protein_id="AAF31090.1"
/protein_id="AAF31090.1"
/protein_id="AAF31090.1"
//db_xref="GI:6901587"
/translation="MSELALIOKAIEESQOKMTQLFDAQKAEIESTGQVSKQLQSDLM
KVOEELTKSGTRLFDLEGKLASGAENPGEKKSFSERAAEELIKSWDGKQGTFGAKTFN
KVGGSDADSAGSLIQPMQIPGIIMPGLRRLTIRDLLAQGRTSSNALEYVREEVFTWNA
KSUGSDADSAGSLIQPMQIPGIIMPGLRRLTIRDLLAQGRTSSNALEYVREEVFTWNA
KSUGSDADSAGSLIQPMQIPGIIMPGLRRLTIRDLLAQGRTSGNALEYVREEVFTWNA
EBGQLLNGDGTGUNLEGINKVATAVDTSLNATGDTRADIIAHAIYQVTESEFSASGIV
LNBRDWHINIALLKDNEERYIFGGPQAFTSNIMWGLDVYARAGTFTVGGFDMASQ
                        translation="MAIDVLDVISLSLFKQQIEFEEDDRDELITLYAQAAFDYCMRWC
                                                                                                                                                                                                                                                                                                                                                                                                       VWDRMDATVEVSREDRDNFVKNMLTILCEERLALAHYRPTAIIKGTFSSGS
                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="5"
                                                                                                                                                                                                                               'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                           /note="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="protease"
/protein_id="AAF31089.1"
/protein_id="AAF31089.1"
/db_xref="G1:6901586"
/translation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGDIIL
/franslation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGDIIL
/franslation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGDIIL
/franslation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGDIIL
/franslation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGDIIL
/franslation="MPEIYKTLSFDETEIKFTGDGKOGIFEGYASVFNNTDSDGJIANKS
// AMMQHGTVEGMSVYGFSVAKDDYTIIPTGRIFKNIQALREISVCTFPANEQAGIANKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4048. .5185
/gene="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Gp5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VDGIETIRDVENWLRDSVGLTKSQAVGLIARFKSAIRSESEGDGNEAQINALLQSIKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /TLGASIA LION="MEEPRYTIDLRTNNGWWARLKSWFVGGRLVTPNQGSQTGPVSAH
(TLGASIA LION="MEEPRYTIDLRTNNGWWARLKSWFVGGRLVTPNQGSQTGPVSAH
GYLGDSSINDERILQISTVWRCVSLISTLTACLPLDVFETDQNDNRKKVDLSNPLARL
LRYSPNQYMTAQEFREAMTMQLCFYGRAYALVDRNSAGDVISLLPLQSANMDVKLVGK
KVVYRYQRDSEYADFSQGEIFHLKGFGFTGLVGLSPIAFACKSAGVAVAMEDQORDFF
KVVRYQRDSEYADFSQGEIFHLKGFGFTGLVGLSPIAFACKSAGVAVAMEDQORDFF
DAEMMASKSPQILSTGEKVLTEQQRSQVEENFKEIAGGPVKKRLMILEAGFFSAGIGVTPQ
ENSIQRMLIPSKUVGRLHAEHNLDGLLRGDSASRAAFMKAMGESGLRTINEMRRTDNM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Gp4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /function="head maturation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PPLPGGDVAMRQAQYVPITDLGTNKEPRNNGA"
3309. .3335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="portal protein"
/protein_id="AAF31088.1"
/db_xref="G1:6901585"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VVKDAAGNRKLDKSKATGRIDGMVAMTMSVGAANGEVTEQGGDFDDFIFRPLSM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TLEERTKTDRAPYDVWVREGLLRTTPGASVDYSFVVADIAEIIGDFDLTSMAFDRWRI
DQFRKDADAIGLSLPLVEFGQQFKDMGPAVDTLESLMLNGRVRHGMHPVLTMCANNAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Gp3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="3"
                                                                                                                                                                                                                                                                                                                                                  5545
                                                                                                                                                                                                                                                                                                                                                                        putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .4025
```

gene

CDS

```
Matches
                                              Query Match
Best Local
                                                                                             CDS
                                                                                                                       gene
                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                   terminator
                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
456 aacgagcgaattaacccatcgttga-gtcaaatttacccaattttattcaataagtcaat 514
                                  451;
                                              Similarity
                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="1
6326..6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="10"
5880. .6329
                                                                                          /gene="13"
7472. .8145
/gene="14"
7472. .7858
                                                                                                                                                                                                                   osz6. .6673
/gene="11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5880. .6329
/gene="10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .5883
/gene≖"7"
                                                                                                                                                                                                                                                                                                                                                                                               /gene="
6733...
                                                                                                                                                                                                                                                                                                                                                                                                                         /note="putative"
/evidence=not_experimental
6733. .7437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /evidence=not_experimental
/evidence=rot_experimental
/product="cpl1"
/protein_id="Aas31102.1"
/db_xref="c1:6901599"
/translation="MNEDNIYALLSPLAEGRVYPYVAPLGSDGKPSVSPPWIIFSIVD
DVSADVLCGQAESRVSVQVDVYSTSIAESRSLRDLVLASLEPLTPTEVVKIPGYEPDY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative head-tail adaptor"
/protein_id="AAF31100.1"
/protein_id="AAF31100.1"
/db_xref="G1:6901597"
/translation="MEPGRFRNRVKILTFTTSRDPSGOPVESWTGGNPVPAEVKGISG
REQLEGGAETAQATIRVWMRFRSELNASSRLEVLSGPYKGQVLNIIGPPVANATGTRL
                                                                                                                                                     /note="putative"
7472. .7858
                                                                                                                                                                                   SPVKTVTSAACTLTIS"
7443. .7462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6692.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6326. .6673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mietsldfsglndiakdlealsraennkylrdatragaevlkee
VIDRAPVRTGKLKKNVVVVTQKSRRRGEISSGVHIRGVNPRTGNSDNTMKANNPRNAF
VMRFVELGTANMPAHPFVRPAYDTREEEAASVAIARMNQAIDEVLSK"
                                                                                                                                                                                                             VGAAISMAVVAAGGKPPYAYTWKKAGSTVSGQTSDTFNKATAVSGDAGDYTCVVTDSS
                                                                                                                                                                                                                                                                                                                                                                            /gene="12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RLYRATLDFKVTP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
/evidence=not_experimental
/product="Gp10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EILCKTGAEK"
                                                                                                                                                                                                                                                                                                                                   /transl_table=11
                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                 /note="Gp12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAF31101.1"
/db_xref="GI:6901598"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="Gp7"
                                              45.7%;
95.1%;
                                                                                                                                                                                                                                                                                                                                                                                               .7437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .6329
                                0;
                             Score 426.8; DB 7;
Pred. No. 1.2e-124;
0; Mismatches 22;
                               Indels
                                                         Length 39732;
                               1:
                               Gaps
                               1;
```

Q

```
맑
                                Qy
                                                                   B
                                                                                                   Qy
                                                                                                                                           рь
                                                                                                                                                                         Qy
                                                                                                                                                                                                               Вр
                                                                                                                                                                                                                                                 QУ
                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
 35500
                                                                     35560
                                                                                                                                                                                                                 35680
                                                                                                                                                                                                                                                                                      35740
                                                                                                                                                                                                                                                                                                                                                              35800
                                                                                                                                                                                                                                                                                                                                                                                                                                  35860 ATCATGCCGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGTGACCGCGTTC 35801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35920
                                                                                                                                           35620
                                 875
                                                                                                                                                                             755
                                                                                                                                                                                                                                                  695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     515
                                                                 tggcaatctctgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcg 874
                                                                                                                                                          ttctcgacaactctcccccacagctctgttttggcaatatcaaccgcacggcctgtacca 814
                                                                                                                                                                                                                                                                                                                                                                             aaaatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagc 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                  atcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattc 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATGTTGCGAGCACTTGCAGTACCTTTGCCTTAGTATTTCCTTCGAGCTTTGCC 35447
                  aatgttgcgagcacttgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                                                                       TTCTCAACAACTCTCCCCCACAGCTCTGTTTTGGCAATATCAACCGCACGGCCTGTACCG
                                                                                                                                                                                                               CGATATGCGGCGCTTGCTGGCATTCTTGAATAGCCGACACCTTTGCATCTTCCGCATTCT 35621
                                                                                                                                                                                                                                cgatatgctgcgcttgctggcatccttgaatagccgacgcctttgcatcttccgcactct 754
                                                                                                                                                                                                                                                                                    GGCTTAACAGTGCGTGACCAGGTGGGTTGGGTGAGGTTTGGGATTAGCATCGTTACAGCG
                                                                                                                                                                                                                                                                                                         99cttaaca9tgcgtgaccaggt999ttg99taaggtttgggattagcatcgtcacagcg 694
                                                                                                                                                                                                                                                                                                                                                          AAAATGTTGTCTGCAATTGACTCTTCCTTGTGGCATTGCACCACCAGAGCGTCATACAGC
                                                                                                                                                                                                                                                                                                                                                          35741
                                                                     35501
                                                                                                                                                                                                                                                                                    3568:
```

Search completed: January 17, 2002, 16:25:58 Job time: 13879 sec

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                 N_Geneseq_1101:*
1: /SIDS2/gcgdata,
2: /SIDS2/gcgdata,
3: /SIDS2/gcgdata,
4: /SIDS2/gcgdata,
5: /SIDS2/gcgdata,
6: /SIDS2/gcgdata,
6: /SIDS2/gcgdata,
8: /SIDS2/gcgdata,
8: /SIDS2/gcgdata,
9: /SIDS2/gcgdata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 January 17, 2002, 16:33:16; Search time 343.96 Seconds (without alignments) 2328.008 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-740-211-13_COPY_11000_11933
934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 amacggcaggaggttgttag.....cttcmagctgcccctgcagg 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            930621 seqs, 428662619 residues
                                                                                                                                                                                                        10:
11:
12:
13:
14:
                                                                 /SIDS2/gcgdata/geneseq/geneseqn/NA1986.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1986.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1989.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1989.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1992.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1993.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1995.DAT:
/SIDS2/gcgdata/geneseq/geneseqn/NA1997.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                     /SIDS2/gcgdata/geneseq/geneseqn/NA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1984.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                              /SIDS2/gcgdata/geneseq/geneseqn/NA1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA2001.DAT:*
                      /SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA2000.DAT:*
```

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Result
934 934 36.6 33 31.8 31.8 31.8 31.8 31.8	score
100.0 100.0 3.9 3.4 3.4 3.4 3.4 3.4 3.4	Query Match Length DB ID
11933 11933 37856 37856 49617 469 469 469 542 542	ength D
21 21 21 21 22 22 22 22 22 22 22 22 22 2	B
AAU0012 AA008612 AAA11992 AAA17411 AAF28541 AAI12818 AAI12818 AAI34173 AAI034173 AAI18836 AAI18836 AAI18836 AAI43958 AAF58252	D D
Huma S. (Arali Gen Pro Pro Pro Pro Oli	Descr
Human racco. S. cellulosum DNA S. cellulosum DNA S. cellulosum DNA Arabidopsis thalia Genomic fragment # Genomic fragment # probe #2751 for ge probe #2752 used t probe #27526 used t probe #3759 for ge probe #12644 used Oligonucleotide D1	Description Recombinant adeno
Ē ⊕ ← ← ⊕ # #	

37 30.8 38 30.8 30.8 30.8 30.8 42 30.6 42 30.6 30.6 30.8 30.6 30.8 30.8 30.8 30.8 30.8 30.8 30.8 30.8	& & & & & & & & & & & & & & & & & & &	31.8 3 31.8 3 31.8 3 31.8 3 31.8 3 31.8 3 31.8 3
3 1951 21 3 1951 21 3 6528 21 3 349980 22 3 3755 12 3 10732 21 3 10732 21 3 1130 21 .3 1136 21	3.4 936 22 AAF58 3.4 938 22 AAF58 3.4 938 22 AAF58 3.3 4247 18 AAT69 3.3 4270 18 AAT69 3.3 4870 18 AAT69 3.3 4870 18 AAT64 3.3 1951 16 AAA9 3.3 1951 16 AAA9 3.3 1951 18 AAT4 3.3 1951 18 AAT4 3.3 1951 18 AAT4	936 22 936 22 936 22 936 22 938 22 1698 19 4455 18 8709 22 247 21 468 19
AAZ91005 AAZ91005 AAX68723 AAH68527 AAQ11561 AAA10594 AAA39064 AAC98064 AAC98064	AAF58254 AAF58257 PAAF58252 AAF58262 AAF58262 AAF58261 AAF90501 AAF68334 AAF66344 AAF71385 AAF71385 AAF71385 AAF71385 AAV21444 AAF71385 AAV21444 AAF71385	AF58254 AF58257 AAF58259 AAF58262 AAF58257 AAX30577 AAX30578 AAX25095 AAF25628 AAF25628
225 700	oligonucleotide particle parti	

ALIGNMENTS

RESULT

1

```
AAD00121
                                                                                                                                                                                                                                                                                                                           AAD00121 standard; DNA; 11933 BP.
                                                                                                                                                                                                         Recombinant Adeno Associated Vector; rAAV; pAAV-F8-1; human Factor VIII; hNF-3 albumin promoter; human elongation factor lalpha; EFlalpha; hFVIII; HNF-3 albumin promoter; human elongation factor lalpha; human growth hormone; hGH; inverted terminal repeat; ITR; haemophilia; gene therapy; ds.
                                                                                                                                                                                                                                                                                  31-JUL-2000 (first entry)
                                                                                                                                                                                                                                                                                                        AAD00121;
                                                                                                                                                                                                                                                             Recombinant adeno associated vector construct, pAAV-F8-1.
                                                                                  20-OCT-1998;
24-MAR-1999;
30-JUL-1999;
                                                                                                                                                                                       Adeno associated virus.
                                                                                                                                                                   WO200023116-A1.
                                                                                                                                                27-APR-2000.
                                                                                                                            19-OCT-1999;
New recombinant adenovirus-associated vector, useful for gene therapy
                                                             (AVIG-) AVIGEN INC.
                      WPI; 2000-339536/29.
                                        Couto LB, Colosi PC;
                                                                                      98US-0104994.
99US-0125974.
99US-0364862.
                                                                                                                                 99WO-US24495.
```

```
11540 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 11599
                                                                                                     11480 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 11539
                                                                                                                                                                          11420 gtagtaagegeegeetetttteateteactaceacaacgagegaattaacecategttga 11479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11360 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 11419
                                                                                                                                                                                                                                                                                                                11300 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 11359
                                                     541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                                                                                                                     11240 tetteaegattategaeteaatgetettaeetgttgtgeagatataaaaaateeegaaae 11299
                                                                                                                        481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                      11180 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 11239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 934;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                               421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11120 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 11179
                                                                                                                                                                                                                                                                    361 totgootgogatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11000 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 11059
                                                                                                                                                                                                                                                                                                                                       301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                          241 tettcacgattatcgactcaatgetettacetgttgtgcagatataaaaaatcecgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 tgggttgttgctgttgctgggcggctgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            segment comprises the C-terminal 85 amino acids of B domain and the A3, of the C2 domains. Both the heavy and light chain segments are cloned of the B domain, that is deleted. This plasmid is operably linked to control sequences, that directs the transcription and translation of the A3 rector VIII gene. The adeno-associated viral vectors are used for gene therapy to treat haemophilia. This method allows prolonged expression of the therapy, because of their broad host range, safety profile and duration of expression in the infected hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (rAAV) construct, pAAV-F8-1. This expression vector comprises the HNR-3 albumin promoter, the first intron (-573 to +985) of human elongation factor-lalpha (EF1alpha) gene, human Factor VIII coding sequence (heVIII) is inserted between the AAV inverted terminal repeat (ITR) regions. The first 57 bp encoding the 19 amino acid signal peptide, Al and A2 domains and 5 amino acids from the N-terminus of the B domain. The light chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11933 BP; 3258 A; 2818 C; 2717 G; 3140 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present DNA sequence is a recombinant adenovirus associated vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 2; Fig 5; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to treat hemophilia, comprises at least a portion of Factor VIII operably linked to control sequence -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 100.
934; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 934; DB 21; 100.0%; Pred. No. 4.9e-312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,,
```

γ В

В Ş В Qγ Ъ

δÃ Д Qy В

В Qγ 밁 Qγ B

```
administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a second recombinant adeno-associated virion comprising a nucleotide encoding the heavy chain of factor VIII. The rAAV vector is particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. The present sequence is phAAV-F8-1 vector without the plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAD08612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                            The present invention relates to a method for treating a subject
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                              suffering from a blood clotting disorder. The method comprises
                                                                                                                                                                   Claim 18; Fig 5; 90pp; English.
                                                                                                                                                                                           Treating blood clotting disorder, especially hemophilia in mammals, by administering recombinant adeno-associated vectors which express blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                           WPI; 2001-417955/44.
                                                                                                                                                                                                                                                                                   Couto LB, Colosi PC,
                                                                                                                                                                                                                                                                                                                (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                            22-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                                                                                                                    28-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                            WO200145510-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Chimeric - Oryctolagus cuniculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chimeric - Adeno associated virus.
Chimeric - Mus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11900 tgccttagtatttccttcaagctgcccctgcagg 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11840 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human factor VIII expressing rAAV vector pAAV-F8-1 partial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 blood clotting disorder; gene therapy; haemophilia A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Recombinant adeno-associated viral vector; rAAV; factor VIII; FVIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-SEP-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11780 tyttttggcaatatcaaccycacygcctgtaccatggcaatctctgcatcttgcccccgg 11839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD08612;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAD08612 standard; DNA; 11933 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11720 tgaatageegaegeetttgeatetteegeaetetttetegaeaaeteteeeeeaeagete 11779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11660 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 11719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11600 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 11659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          901 tgccttagtatttccttcaagctgcccctgcagg 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721 tgaatagoogaogootttgoatottoogoaottotttotogaoaaototcocooaoagoto 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661 ttgggtaaggtttggggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                         9908-0470618
                                                                                                                                                                                                                                                                                   Qian x;
```

```
និនិនិនិន្តន្ត
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                backbone. It comprises HNF-3 mouse albumin promoter, a synthetic intron backbone in the comprises has been factor lalpha (EFlalpha) and immunoglobulin G based on human elongation factor lalpha (EFlalpha) and immunoglobulin G lagorithm factor viii coding the code of the code in the code of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 11933 BP; 3258 A; 2818 C; 2717 G; 3140 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11120 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 11179
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11240 tottoacgattatogactcaatgotottacotgttgtgcagatataaaaaatcccgaaac 11299
                                                                                                                                                            밁
                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11360 totgootgogatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 11419
                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11420 gtagtaagcgccgctcttttcatctcactaccacaacgagcgaattaacccatcgttga 11479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 tottoacgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11480 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 11539
                                                                                                                                                                                                                                                                                                                  11600 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 11659
                                                                                                                                                                                                                                                                                                                                                                                                11540 gtggcaatcalgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 11599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361 totgootgogatggttggagttocagacgatacgtogaagtgaccaactaggoggaatog 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421 gtagtaagcgccgcctctttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                      11660 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 11719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                          11720 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 11779
                                                                                                                                                                                                                                                                                                                                                                                                                    541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
11780 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 11839
                                                                                                                                                                                                                                                                                                                                        601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                            661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                721 tgaatagoogaogootttgoatottooggactotttotogacaactotcoccocacagotc 780
                                                                                                  781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; imilarity 100.0%; incomparity 00.0%; incomparity 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 934; DB 22; Length 11933; pred. No. 4.9e-312;
```

먑

```
AAA11992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAA11992 standard; DNA; 37856 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S. cellulosum DNA encoding polyketide and hereropolyketide enzymes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA11992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polyketide biosynthesis; heteropolyketide biosynthesis; mutasynthesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Sorangium cellulosum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   plant-protection; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          epothilone; cytotoxic; immunosuppressant; antibiotic; antifungal;
                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            w
                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                    CDS
                                                                                                                                                                                            CDS
                                                                                                                                                                   CDS
                                                                                                                                  CDS
                                                                                                        CDS
                                                                        CDS
                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                              complement (3398.,6100)
                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                              /note= "gtg start codon complement (6374..7111)
                                                                                                                                                                                                                                                                                                                                                                                              /*tag= a "ORF1-tRNA synthetase"
/product= "ORF1-tRNA synthetase"
                                                                                                                                                                                                                                                                                                                                                             /*tag= b "ORE2-monooxygenase"
/product= "ORE2-monooxygenase"
                                                                                                                                                                                                                                                                                                                                                    complement (8433..9550
                                                                                                                                                                                                                                                                                                                            /product= "ORF3-aminotransferase"
/note= "AGT start codon given in the specification"
                                                                                                                                                                                                                                                                                                   /product= "ORF4- tyrosine/DOPA-Decarboxylase"
                                                                                                                                                                                                                                                            /^rag" g "ORF7-peptide synthetase"
/product= "ORF7-peptide synthetase"
28251.29400
                                                                                                                                                                                                                                                   15374..19984
                                                                                                  /*tag= k
                                                                                                                                                                      /product= "ORF8-transpeptidase"
complement (30040..31720)
                                                                                                                                                                                                                                 /product= "ORF6-polyketide synthase"
                                                                                                                                                      /product= "ORF9-regulation element"
                                                                                   /product= "ORE11-regulation element"
/note= "GTG_start codon"
                       complement (35730..36242)
                                                  complement (35255..35616)
                                                           /product= "ORF12-regulation element"
                                 'product= "ORF13-transcription regulator"
        /product= "ORF14-transcription regulator"
/note= "GTG start codon"
                                                                                                                                                                                                                                                                                              "GTG start codon"
```

DE19846493-A1.

```
RESULT
                            25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                       25-FEB-2000; 2000EP-0301439.
                                                                                        06-SEP-2000.
                                                                                                       EP1033405-A2.
                                                                                                                     Arabidopsis thaliana
                                                                                                                        metabolic pathway; promoter; termination sequence; ss.
                                                                                                                             Hybridisation assay; genetic mapping; gene expression control;
                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                           Arabidopsis thaliana DNA fragment SEQ ID NO: 17282.
                                                                                                                                                                                                                                                   25127 gggcatctcgcgctggagctcgagcagccgcgggccctacggcgatta 25173
                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                    17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                25067 togacacaaatottgotoaaagaagtgttoacgototacgaggogoaccgoggacaccgt 25126
                                                                                                                                                                                                            AAC37411;
                                                                                                                                                                                                                   AAC37411 standard; DNA; 1063 BP.
                                                                                                                                                                                                                                                               816 ggcaatctctgcatcttgcccccggcgtcgcggcactacggcaataa 862
                                                                                                                                                                                                                                                                                                                                                                                   This invention describes a novel DNA sequence (I) whose expression products effect or are involved in the enzymatic biosynthesis or partial synthesis of polyketide or heteropolyketide compounds (II). (I) can be inserted into an expression vector and used of obtaining strains that produce large amounts of polyketide or heteropolyketide compounds, especially epothilones, with the aim and/or immunosuppressant and antibiotic and antifungal activities and sequence isolated from Sorangium cellulosum which is described in the method of the invention
                                                                                                                                                                                                                                                                                            756 tetegacaacteteececacagetetgttttggcaatateaacegcaeggcetgtaecat 815
                                                                                                                                                                                                                                                                                                                                                                Sequence 37856 BP; 5655 A; 13666 C; 12913 G; 5622 T; 0 other;
                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 3; Page 20-33; 36pp; German.
                                                                                                                                                                                                                                                                                                                                         Local Similarity
les 63; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polyketide or heteropolyketide compounds, especially epothilone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA sequence coding for products involved in the biosynthesis of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-294101/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Beyer S, Mueller R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GBFB ) GES BIOTECHNOLOGISCHE FORSCHUNG MBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-APR-2000.
                       99US-0121825.
99US-0123180.
99US-0123548.
99US-0125788.
                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98DE-1046493.
                                                                                                                                                                                                                                                                                                                                          3.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98DE-1046493.
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                              Score 36.6; DB 21; Length 37856; Pred. No. 0.36;
                                                                                                                                                                                                                                                                                                                          44; Indels
09-JUL-1999;
12-JUL-1999;
13-JUL-1999;
                                                                                                                                                          18-JUN-1999;
                                                                                                                                                                                                                                                                               16-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-MAR-1999;
29-MAR-1999;
                                                                       99US-0140823
99US-0140991
99US-0141287
99US-0141842
                                                                                                                                                          99US-0139458
99US-0139459
99US-0139460
99US-0139461
99US-0139463
99US-0139463
99US-0139750
                                          9908-0142803
                                                                                                                                                                                                                        99US-0139456.
99US-0139457.
                                                                                                                                                                                                                                        990S-0139454
990S-0139455
                                                                                                                                                                                                                                                                  99US-0139452.
99US-0139453.
                                                                                                                                                                                                                                                                                                                                                     99US-0136021.
99US-0136392.
99US-0136782.
                                                                                                                                                                                                                                                                                           99US-0138847.
                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0134256
99US-0134218
99US-0134219
99US-0134221
99US-0134221
99US-0134370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0132487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0126264.
99US-0126785.
99US-0127462.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9908-0130891.
```

DЪ

16-JUL-1999; 19-JUL-1999; 19-JUL-1999; 19-JUL-1999;

99US-0144325. 99US-0144331. 99US-0144331. 99US-0144332. 99US-0144333.

990S - 0144334 990S - 0144352 990S - 0144632 990S - 0144632 990S - 0144814 990S - 0145086 990S - 0145085 990S - 0145087 990S - 0145089 990S - 014518 990S - 014518 990S - 014518 990S - 014518

```
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-OCT-1999;
12-OCT-1999;
13-OCT-1999;
13-OCT-1999;
13-OCT-1999;
                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
                                                                                                                                                                                        AAF28541
                                                                                                                                                                                                                                                                                                                                                           14 OCT 1999;
18 OCT 1999;
21 OCT 1999;
22 OCT 1999;
22 OCT 1999;
22 OCT 1999;
22 OCT 1999;
25 OCT 1999;
25 OCT 1999;
26 OCT 1999;
26 OCT 1999;
26 OCT 1999;
26 OCT 1999;
27 OCT 1999;
28 OCT 1999;
29 OCT 1999;
RESULT
                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-OCT-1999;
14-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-OCT-1999;
                                                                                                                                                                                                                                                                                                     466 traacccatcgttgagtcaaatttacccaattttattcaataagtcaatatcatgccgtt 525
                                                                                                                                                                                                                                                         866 ticccaaatcattgaatatgatgtaacttatattgaacaacacagcatcatccttcttct 925
                                                                                                                                                                                  AAF28541 standard; DNA; 49617 BP.
                                                                                                                                                                                                                                          586 tgcgattgactcttctt 602
                                                                                                                                                  04-APR-2001 (first entry)
                                                                                                                                                                  AAF28541;
                                                                                                                                                                                                                          986 tgcctttatgtcttcat 1002
                                                                                                       Genomic library; bacteria; human upper airway; otitis media; sinusitis; bronchopulmonary; endocarditis; meningitis; ss.
                                                                                        Moraxella catarrhalis.
                                                                        WO200078968-A2
                                                         28-DEC-2000.
                                        16-JUN-2000; 2000WO-US16649.
       (INCY-) INCYTE GENOMICS INC
                         18-JUN-1999;
                                                                                                                                                                                                    υ
                                                                                                                                                                                                                                                                                                                              1 Similarity
72; Conserv
                                                                                                                                                                                                                                                                                                                            3.5%;
milarity 52.6%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0158232.
99US-0158369.
99US-0159293.
99US-0159294.
99US-0159329.
99US-0159330.
99US-0159331.
99US-0159637.
99US-0159638.
99US-0159638.
                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0160741.
99US-0160767.
99US-0160768.
99US-0160814.
99US-0160815.
99US-0160815.
99US-0160980.
99US-0160989.
99US-0161406.
99US-0161406.
                                                                                                                                                                                                                                                                                                                                                                                               99US-0161359.
99US-0161360.
99US-0161361.
                                                                                                                                                                                                                                                                                                                                                                99US-0161920.
99US-0161992.
99US-0161993.
99US-0162142.
                            99US-0140121
                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                    Score 33; DB 21; Length 1063; Pred. No. 0.88; O; Mismatches 65; Indels (0)
                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                   0;
```

18 AUG-1999;
20 AUG-1999;
20 AUG-1999;
20 AUG-1999;
23 AUG-1999;
25 AUG-1999;
25 AUG-1999;
27 AUG-1999;
27 AUG-1999;
27 AUG-1999;
27 AUG-1999;
27 AUG-1999;
30 AUG-1999;
31 AUG-1999;
32 SEP-1999;
14 SEP-1999;
15 SEP-1999;
22 SEP-1999;
23 SEP-1999;
24 SEP-1999;
24 SEP-1999;
26 GCT-1999;
06 GCT-1999;
07 GCT-1999;

990S-0151438 990S-0151930 990S-0153070 990S-0153070 990S-0154018 990S-0154018 990S-0154039 990S-0155486 990S-0155486 990S-0155659 990S-0156458 990S-0157517 990S-0157753 990S-0157753 990S-0157865 990S-0157865 990S-0149722 990S-0149722 990S-0149723 990S-0149929 990S-0149902 990S-0149930 990S-0149930

99US-0150884. 99US-0151065. 99US-0151080. 99US-0151303. 20-JUL-1999;
20-JUL-1999;
20-JUL-1999;
21-JUL-1999;
21-JUL-1999;
21-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
23-JUL-1999;
23-JUL-1999;
23-JUL-1999;
23-JUL-1999;
23-JUL-1999;
24-JUL-1999;
27-JUL-1999;
27-JUL-1999;
27-JUL-1999;
27-JUL-1999;
28-JUL-1999;
27-JUL-1999;
28-JUL-1999;
29-JUL-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
00-JUG-1999;
01-JUG-1999;
01-JU

990S-0145276 990S-0145913 990S-0145919 990S-0146386 990S-0146388 990S-014708 990S-014708 990S-0147102 990S-0147102 990S-0147102 990S-0147102 990S-0147102 990S-0147102 990S-0147102 990S-0147102 990S-0147103 990S-0147416 990S-0148131 990S-0148341 990S-0148341 990S-0148368 990S-0149368 990S-0149368

```
04-FEB-2000; 2000US-0180312.
26-MAY-2000; 2000US-0207456.
30-JUN-2000; 2000US-0608408.
03-AUG-2000; 2000US-052366.
27-SEP-2000; 2000US-0323639.
04-OCT-2000; 2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                       AAI12818/c
                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (MOLE-) MOLECULAR DYNAMICS INC
                                                                                                                 30-JAN-2001; 2001WO-US00670.
                                                                                                                                                09-AUG-2001.
                                                                                                                                                                     W0200157278-A2.
                                                                                                                                                                                                    Probe; human; microarray; gene expression; cervical epithelial cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                         Probe #2751 for gene expression analysis in human cervical cell sample.
                                                                                                                                                                                                                                                                                                                                                                           11682 cggatgag 11689
                                                                                                                                                                                                                                                                                                                                                                                                 11622 tgggtogtatgacagtgactttaggcgctacttctgcaccacaagcggctgatacaacaa 11681
                                                                                                                                                                                                                                                                           12-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                              11562 cacagettgatgatgttcaaagettggataategteetgetgaagaaacaccaegeteat 11621
                                                                                                                                                                                                                                                                                                    AAI12818;
                                                                                                                                                                                                                                                                                                              AAI12818 standard; DNA; 469 BP
                                                                                                                                                                                                                                                                                                                                                                                                               577 aatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcgg 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to a Moraxella catarrhalis genomic library comprising of a combination of 41 nucleic acid molecules (see AAF28514-AAF28554). The library has a number of uses described in the compositions. M. catarrhalis (Branhamella Catarrhalis) is and therapeutic flora of human upper aliways. M. catarrhalis (Branhamella Catarrhalis) is a large localised infections such as otifis media, sinsitis and the bacterial infection and life-threatening, systemic diseases including endocarditis and meningitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             517 catgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattcaa 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 49617 BP; 14572 A; 9853 C; 11026 G; 14166 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; Page 235-247; 545pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genomic library for identifying diagnostic and therapeutic compositions, and for identifying virulence factors, regulatory acids.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-041427/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lagace RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         68;
                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patterson C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.4%;
53.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches 60; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Berg KL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 32; DB
Pred. No. 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 22; Length 49617;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
PF
XX
PR
PR
PR
PR
PR
PR
PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAI34173/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human placenta -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-488897/53.
                                                                                                                                                               Penn SG,
                                                                                                                                                                                         (MOLE-) MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                                                     26-MAY-2000; 2000US-0207456;
30-UUN-2000; 2000US-0608408;
AUG-2000; 2000US-0632366;
21-SEP-2000; 2000US-0234687,
                                                                                                                                                                                                                                                        04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                      04-FEB-2000;
26-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                30-JAN-2001; 2001WO-US00663.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200157272-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Probe; microarray; human; placenta; antenatal diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Probe #2859 used to measure gene expression in human placenta sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAI34173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAI34173 standard; DNA; 469 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158 cgcatttggtgatccggttctgcttccggta 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115 CAGACAGAAGCAGAGTTGAGTGGGGGTGCTGTGGTTGCTTGGAGGACAAGTGGCAAGTC 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     microarray, which can be used for measuring human gene expression in a expression, the probes are therefore useful in grading and/or staging of diseases of the cervix, notably cervical cancer.

Specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 469 BP; 125 A; 159 C; 88 G; 97 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55 AAACTTGGGTGTTCTGGGAAGGCTTCCTGGA 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention relates to human single exon nucleic acid probes (SENP). The present sequence is one such probe. The SENPs are derived from human HeLa cells. The SENPs can be used to produce a single exon probability of the second sequence as the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 25; SEQ ID No 2751; 487pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human genome-derived single exon nucleic acid probes useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        analyzing gene expression in human cervical epithelial cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-488901/53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Penn SG,
                                                                                                                                                     Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          54;
                                                                                                                                                                                                                                        2000US-0236359.
2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                                                   2000US-0180312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hanzel DK,
                                                                                                                                             Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chen W,
                                                                                                                                     Rank DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 31.8;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rank DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 22; Length 469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
```

```
XXX222222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
      RESULTS

AAI02735/C
ID AAI02735/C
ID AAI02735/C
ID AAI027
XX Probe
XX Probe
XX Probe
XX Probe
XX Probe
XX W0200
XX W0200
XX W0200
XX 09-AU
XX PP 29-JJ
PF 20-AU
XX 04-FJ
PF 21-S
PR 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene producing a microarray for predicting measuring and displaying gene expression in samples derived from human placenta. The probes are useful expression in samples derived from human genetic disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 25; SEQ ID No 2859; 654pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 469 BP; 125 A; 159 C; 88 G; 97 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAI02735 standard; DNA; 469 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                probe #2726 used to measure gene expression in human breast sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAI02735;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 cgcatttggtgatccggttctgcttccggta 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         probe; human; breast disease; breast cancer; development disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             inflammatory disease; proliferative breast disease; non-carcinoma tumour.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98 cagacagtggctacggctcagtttgggttgtgctgttgctgggcggcgatgacgcctgta 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200157270-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55 AAACTTGGGTGTTCTGGGAAGGCTTCCTGGA 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-JAN-2001; 2001WO-US00661.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
The present invention relates to novel single exon nucleic acid probes. The present sequence is one such probe. The probes are useful for measuring human gene expression in a human breast sample, where the probe hybridises at high stringency to a nucleic acid expressed in the human hybridises at useful for predicting, diagnosing grading, breast. The probes are useful for predicting, diagnosing breast, are useful for predicting, the human breast staging, monitoring and prognosing diseases of the human breast particularly those diseases with polygenic aetiology. The diseases particularly those diseases with polygenic aetiology. The diseases include: breast cancer, disorders of development, inflammatory diseases
                                                                                                                                                                                                                                                                                                               Novel single exon nucleic acid probe used to measuring gene expression in a human breast \dot{\boldsymbol{\cdot}}
                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-476286/51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MOLE-) MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                        Claim 25; SEQ ID No 2726; 322pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0180312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0236359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 31.8; Di
Pred. No. 1.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rank DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22; Length 469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
SSSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    β
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAI18836/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 469 BP; 125 A; 159 C; 88 G; 97 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAI18836 standard; DNA; 542 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158 cgcatttggtgatccggttctgcttccggta 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115 CAGACAGAAGCAGAGATTGAGTGGGGGGGTGCTGGTTGCTTGGAGGACAAGTGGCAAGTC 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Probe #8769 for gene expression analysis in human cervical cell sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAI18836;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-FEB-2000;
26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98 cagacagtggctacggctcagtttgggttgtgctgttgctgggcggcgatgacgcctgta 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             probe; human; microarray; gene expression; cervical epithelial cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200157278-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cervical cancer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55 AAACTTGGGTGTTCTGGGAAGGCTTCCTGGA 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-JAN-2001; 2001WO-US00670.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-AUG-2001
                             The present invention relates to human single exon nucleic acid probes (SENP). The present sequence is one such probe. The SENPs are derived (SENP). The present sequence is one such probe. The SENPs are derived from human fleta cells. The SENPs can be used to produce a single exon microarray, which can be used for measuring human gene expression in a sample derived from human cervical epithelial cells. By measuring gene sample derived from human cervical epithelial cells. By measuring gene sample derived from human cervical epithelial cancer. of the probes are therefore useful in grading and/or staging expression, the probes are therefore useful in cancer. of diseases of the cervix, notably cervical cancer mart of the printed Note: The sequence data for this patent did not form part of the printed specification, but was obstained in electronic format directly from WIPO specification, but was obstained in electronic format directly security and the sequence of the printed specification, but was obstained in electronic format directly from WIPO specification.
                                                                                                                                                                                                                                                                                                                                                                                (MOLE-) MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                 Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human cervical epithelial cells -
                                                                                                                                                                                                                                                                                                                                            Penn SG, Hanzel DK,
                                                                                                                                                                                                                   Claim 25; SEQ ID No 8769; 487pp; English.
                                                                                                                                                                                                                                                                                                            WPI; 2001-488901/53.
               at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fibrocystic changes, proliferative breast disease and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0180312
                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0236359.
2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0207456
2000US-0608408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0632366
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0234687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.4%;
59.3%;
                                                                                                                                                                                                                                                                                                                                                          Chen W, Rank DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 31.8; D
Pred. No. 1.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

SQ

```
Matches
                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAI43958/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
Sequence 542 BP; 150 A; 153 C; 121 G; 118 T; 0 other;
                                                                                                                           The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
                                                                                                                                                                                                                                                                                                                                       26-MAY-2000; 2000US-0207456
30-JUN-2000; 2000US-0608408
03-AUG-2000; 2000US-052366
21-SEP-2000; 2000US-0234687
27-SEP-2000; 2000US-0234687
27-SEP-2000; 2000US-0236359
04-OCT-2000; 2000GB-0024263
               Claim 25; SEQ ID NO 12644; 654pp; English.
                                                                                                                                                                                                                        Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human placenta -
                                                                                                                                                                                                                                                                           WPI; 2001-488897/53.
                                                                   / Match 3.4%; Score 31.8; DE Local Similarity 59.3%; Pred. No. 1.6;
                                                                                                                                                                                                                                                                                                                 (MOLE-) MOLECULAR DYNAMICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                 04-FEB-2000; 2000US-0180312.
26-MAY-2000; 2000US-0207456.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                 30-JAN-2001; 2001WO-US00663.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200157272-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Probe #12644 used to measure gene expression in human placenta sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Probe; microarray; human; placenta; antenatal diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAI43958;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAI43958 standard; DNA; 542 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218 AAACTTGGGTGTTCTGGGAAGGCTTCCTGGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 542 BP; 150 A; 153 C; 121 G; 118 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158 cgcatttggtgatccggttctgcttccggta 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   278 CAGACAGAAGCAGAGATTGAGTGGGGGGGGTGCTGGTTGCTTGGAGGACAAGTGGCAAGTC 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98 cagacagtggctacggctcagtttgggttgtgctgttgctgggcggcgatgacgcctgta 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocal
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     54;
                                                                                                                                                                                                                                                                                               Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.4%;
Similarity 59.3%;
54: Concount:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                         Chen W, Rank DR;
                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 31.8; Di
Pred. No. 1.6;
                                                                        DB 22; Length 542;
                                                 37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 22; Length 542;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37; Indels
                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

밁

```
Qγ
                                                                    Ъ
                                                                                            δÃ
                                                                                                                      В
                                                                                                                                               ρy
                                                                                                                                                                          Ъ
                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
AAF58252/c
489 tacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggcaat 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                        434 МИНИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИЙ AAGCCMMINIMIMIMIMIMIMIMIMI 375
                                                               429 ogccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttgagtcaaatt 488
                                                                                           369 cgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaag 428
                                                                                                                                               309 aggctctaactattacctgcgaactgtttcgggattgcattttgcagacctctctgcctg 368
                                                                                                                                                                                                                                                                                                                                                       The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                   249 attatcgactcaatgctcttacctgttgtgcagatataaaaaaatcccgaaaccgttatgc 308
                                                                                                                                                                                                                                                                                                                           Sequence 936 BP; 4 A; 139 C; 10 G; 7 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses or a single surface.
                                                                                                                                                                                                                                                      Local Similarity 1.7%; Pred. No. 2.1;
nes 6; Conservative 196; Mismatches 153; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200107665-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Oligonucleotide D1835.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF58252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF58252 standard; DNA; 936 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 cgcatttggtgatccggttctgcttccggta 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218 AAACTTGGGTGTTCTGGGAAGGCTTCCTGGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0145695
                                                                                                                                                                                                                                                                                3.4%;
1.7%; P
                                                                                                                                                                                                                                                                        Score 31.8; DB 22; Length 936;
Pred. No. 2.1;
                                                                                                                                                                                                                                                        0;
```

549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603

80 밁

RESULT 12

AAF58254 standard; DNA; 936 BP.

AAF58254;

24-APR-2001

(first entry)

Oligonucleotide D1875

Electron-transfer group; ETM; mismatch; genotyping;

synthetic. gene expression;

WO200107665-A2

01-FEB-2001

26-JUL-2000; 2000WO-US20476.

26-JUL-1999; 99US-0145695. 17-MAR-2000; 2000US-0190259.

99US-0145695.

(CLIN-) CLINICAL MICRO SENSORS INC.

```
cgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttgagtcaaatt 488
                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAF58257,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      მგგევევგ<mark>%</mark>&
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489 tacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggcaat 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF58257 standard; DNA; 936 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603
                                                                                                                                                                    QΥ
                                                                                                                                                                                                           g
                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oligonucleotide D1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAF58257;
                                                                                                                                   Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24-APR-2001 (first entry)
                                                               В
                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Electron-transfer group; ETM; mismatch; genotyping;
                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-FEB-2001.
                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleic acids containing electron-transfer group, useful as labels in Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on a circle are the containing transfer and the containing transfer are the containing transfer are the containing transfer and the containing transfer are the containing transfer group, useful as labels in the containing electron-transfer group, allowing repeat analyses on the containing electron-transfer group.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Umek RM
                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having acids each containing an invention is used for electronic different redox potentials. The invention is used for electronic different redox potentials, the invention is used for electronic different redox potentials, the invention is used for electronic different redox potentials. The invention is used for electronic distance acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 6; Page 127; 159pp; English
                                                                                                                                                                                                                                                                                                                                                                          Sequence 936 BP; 5 A; 142 C; 7 G; 6 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                             monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single surface
                                                                                                                                                                                                           249 attatogactcaatgctcttacctgttgtgcagatataaaaaatcccgaaaccgttatgc 308
                                                                                                                                                                    309 aggetetaaetattaeetgegaaetgtttegggattgeattttgeagaeetetetgeetg 368
                                                                                                                                     494 Симининиминининимининиминиминиминимининиминиминиминиминиминим 435
                                                                                                369 cgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaag 428
                                                                                                                                                                                                                                                                                   3.4%; Score 31.8; DB 22;
Match 1.7%; Pred. No. 2.1;
Local Similarity 1.7%; Pred. No. 2.1;
Local Similarity 196; Mismatches 153;
Les 6; Conservative 196; Mismatches 153;
                      429 cgccgcctcttttcatctcactaccaccaacgagcgaattaacccatcgttgagtcaaatt 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9905-0145695
                  DB 22; Length 936;
                                                                                                                                                                                                                                                                                                                                 0
```

Umek RM;

WPI; 2001-159728/16

Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on hybridization.

acids each containing an electron-transfer group (ETM) having acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic different redox potentials, especially of substitutions (mismatches) detection of nucleic acids, especially of substitutions The present invention relates to a composition comprising two nucleic

and single-nucleotide polymorphisms, e.g. for genotyping,

monitoring gene expression.

Sequence 936 BP; 4 A; 144 C; 7 G; 5 T; 776 other;

a single surface

Example 6; Page 127; 159pp; English.

QΥ

Query Match Best Local '

Match 1.7%; Local Similarity 1.7%; l

6; Conservative 196;

Matches

pred. NO. 2:1, 96; Mismatches 153; Indels

Score 31.8; Pred. No. 2:

DB 22; Length 936;

0;

0;

δÃ 밁

369 cgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaag 428

434 МИМИЛИМИМИМИМИМИМИМИМИМИМИМИМИМИМИТ AAGCMWWWWWWWWWWWWWWWWW 375

δõ 밁

뮹

```
Matches
369 cgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaag 428
                                       RESULT 14
AAF58259/c
                                                        309 aggctctaactattacctgcgaactgtttcgggattgcattttgcagacctctctgcctg 368
                                                                              249 attatogactoaatgotottaootgttgtgoagatataaaaaatooogaaacogttatgo 308
                                                                                                                                                                               Sequence 936 BP; 6 A; 138 C; 8 G; 8 T; 776 other;
                                                                                                                                                                                                 The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                         Example 6; Page 128; 159pp; English.
                                                                                                                                                                                                                                                                                         Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                 Local Similarity 1.7%;
                                                                                                                                                                                                                                                                                                                                           WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                                                                                     Umek RM;
                                                                                                                                                                                                                                                                                                                                                                            (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                  26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                              26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200107665-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oligonucleotide D2004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF58259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF58259 standard; DNA; 936 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          489 tacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggcaat 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative 196;
                                                                                                                                                       3.48;
                                                                                                                     Pred. No. 2.1;
96; Mismatches 153; Indels 0; Gaps
                                                                                                                                            Score 31.8; DB 22; Length 936;
```

Ωy В γQ Дδ Qy

```
Db
                                                                                        Qγ
                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                  Query Match
369 cgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaag 428
                                 309 aggototaaotattacotgogaactgtttogggattgcattttgcagacotototgcotg 368
                                                                                 249 attatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaaccgttatgc 308
                                                                                                                                                                                                 Sequence 936 BP; 5 A; 139 C; 10 G; 6 T; 776 other;
                                                                                                                                                                                                                                    The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having defection of nucleic acids, especially of substitutions (mismatches) and single-nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                               and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                           Example 6; Page 128; 159pp; English.
                                                                                                                                                                                                                                                                                                                                Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-159728/16.
                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                              (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W0200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oligonucleotide D2007.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF58262 standard; DNA; 936 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAF58262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               489 tacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggcaat 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          429 cgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttgagtcaaatt 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          434 МИМИПИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИТAAGCWWMИМИМИМИМИМИМИМ 375
                                                                                                                                               Conservative 196;
                                                                                                                                                          3.48;
                                                                                                                                                          Pred.
                                                                                                                                                       Score 31.8;
Pred. No. 2.1;
                                                                                                                                     Mismatches 153; Indels
                                                                                                                                                              DB 22;
                                                                                                                                                           Length 936;
                                                                                                                                0,
```

•			
•			

us-09-740-211-13_copy_11000_11933.rni

OM nucleic - Run on: Pritle: Perfect scor Sequence: Scoring tab: Searched: Total numbe Minimum DB Maximum DB Maximum DB Post-proces Database: Database: Database: 1 1 2 3 4 4 6 6 7 6 7 6 11 6 11 6 11 6 11 7 6 11 6 11 6 11 6 11 6 11 7 6 11 6 1	1 934 100.0 11933 4 US-09-47-07-13 934 100.0 11933 4 US-09-13-34-862-13 3 37.6 4.0 7218 1 US-09-232-463-14 Sequence 13, 3 31.6 3.4 4668 4 US-09-045-301-1 Sequence 14, 5 31.2 3.3 2940 3 US-09-195-868-12 Sequence 1, 8 31.2 3.3 4147 4 US-09-618-540-1 Sequence 7, 9 31.2 3.3 4147 4 US-09-618-70-1 Sequence 7, 9 31.2 3.3 4147 4 US-09-618-70-705-17 Sequence 7, 9 31.2 3.3 4870 4 US-09-241-761-7 Sequence 7, 9 31.2 3.3 4870 4 US-09-241-796-17 Sequence 7, 9 31.2 3.3 4870 4 US-09-241-796-17 Sequence 1, 10 31.2 3.3 1951 2 US-08-487-890A-112 Sequence 1, 11 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 12 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 13 30.8 3.3 1951 2 US-08-478-774-711-112 Sequence 1, 14 30.8 3.3 1951 2 US-08-478-774-712 Sequence 1, 15 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 16 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 17 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 18 30.8 3.3 1951 2 US-08-478-373-112 Sequence 1, 19 30.8 3.3 1951 4 US-08-994-483-574-112 Sequence 1, 20 29.6 3.2 4254 3 US-08-994-483-7 Sequence 2, 21 29.6 3.2 4254 3 US-08-945-994-4 Sequence 2, 22 29.6 3.2 4254 3 US-08-945-994-1 Sequence 2, 23 28.8 3.1 1955 1 US-08-478-994-1 Sequence 2, 24 28.6 3.1 1955 2 US-08-478-99A-14 Sequence 2, 25 28.6 3.1 1955 2 US-08-478-99A-14 Sequence 2, 26 28.6 3.1 1955 2 US-08-478-39A-114 Sequence 2, 27 28.6 3.1 1955 2 US-08-478-39A-114 Sequence 2, 28 29.6 3.1 1955 2 US-08-478-39A-114 Sequence 2, 29 29 29 29 29 29 29 29 29 29 29 29 29 2	pred. No. is the number of results predicted by control being print score greater than or equal to the score of the result being print and is derived by analysis of the total score distribution. and is derived by analysis of the total score distribution. SUMMARIES 8 No. Score Match Length DB ID No. Score Match Length DB ID Sequence 13 Sequence 13	st-processing: Minimum Match 100% Maximum Match 100% Listing first 45 summaries Listing first 45 summaries Issued_Patents_NA:* Issued_Patents_NA:* 1: /cgn2_6/ptodata/2/ina/5A_COMB.seq:* 2: /cgn2_6/ptodata/2/ina/6A_COMB.seq:* 3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:* 4: /cgn2_6/ptodata/2/ina/6B_COMB.seq:* 5: /cgn2_6/ptodata/2/ina/pCTUS_COMB.seq:* 6: /cgn2_6/ptodata/2/ina/pCTUS_COMB.seq:* 6: /cgn2_6/ptodata/2/ina/backfiles1.seq:*	Gapop 10.0 , Organization (Gapop 10.0) (Gap	US-09-740-211-13_COPY_ score: 934 : 1 aaacggcaggaggttgttag: table: IDENTITY_NUC Capext 1.	nucleic n on:
	1000 1000 1000 1000 1000 1000 1000 100	No. is the e greater t is derived a query guery	ing: Min: Max: Lisi ISS 1: 2: 3: 4: 6:	of eq 1 eq 1	US- : 934 : 1 a	Copyri nucleic sea January
Cop Jan US- 1 1 a 1 2 351 Of hitter Gar Gar 1 3 31 31 31 31 31 31 31 31 31	11933 4 7218 1 7218 1 4460 3 3691 4 4147 4 4147 4 4870 4 4870 4 4870 4 1951 3 1951 3 1955 3 1	number of an or equay analysis	um Match 10° um Match 10° ng first 45° d_Patents_NA gn2_6/ptodat gn2_6/ptodat gn2_6/ptodat gn2_6/ptodat gn2_6/ptodat gn2_6/ptodat gn2_6/ptodat	eqs, 11 sfying 000000	-211-1 aggagg	GenCor ght (c) 199 rch, using 17, 2002,
Copyright (c) 199 January 17, 2002, US-09-740-211-13_ 934 1 aaacggcaggaggtt IDENTITY_NUC Gapop 10.0 , Gapo 351203 seqs, 1133 of hits satisfying c eq length: 0 eq length: 0 eq length: 0 listing first 45 Listing first 45 Issued_Patents_N Listing first 45 1 (cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 5: /cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 5: /cgn2_6/ptod) 5: /cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 7: /cgn2_6/ptod)	US-09-34-862 US-09-36-862 US-09-195-868 US-09-195-868 US-09-195-868 US-08-560-000 US-09-11-74, US-08-664-96, US-08-644-79, US-08-487-89 US-08-478-43 US-08-478-47 US-08-474-69, US-08-478-49, US-08-478-49,	results predicto the score of the total summaries	\$ summaries ::* :a/2/ina/5A_CO; :a/2/ina/5B_CO; :a/2/ina/6A_CO; :a/2/ina/6B_CO; :a/2/ina/6B_CO; :a/2/ina/pCTU; ta/2/ina/backt	9999 jen	px_11000_119 tag 1.0	version 4 - 2000 C - model 6:26:57;
Copyright (c) 199 January 17, 2002, US-09-740-211-13_ 934 1 aaacggcaggaggtt IDENTITY_NUC Gapop 10.0 , Gapo 351203 seqs, 1133 of hits satisfying c eq length: 0 eq length: 0 eq length: 0 listing first 45 Listing first 45 Issued_Patents_N Listing first 45 1 (cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 5: /cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 5: /cgn2_6/ptod) 5: /cgn2_6/ptod) 6: /cgn2_6/ptod) 6: /cgn2_6/ptod) 7: /cgn2_6/ptod)	-13 -14 -11 -11 -11 -11 -11 -11 -11	ged by common of the result geore distribution of the result geore	MB.seq:* MB.seq:* MB.seq:* MB.seq:* 11es1.seq:*	: 70240		ਲੌਜੇਸ਼ ਜ
Copyright (c) 1993 - 2000 Compugen January 17, 2002, 16:26:57; Search, (withou) 1789.29 US-09-740-211-13_COPY_11000_11933 934 US-09-740-211-13_COPY_11000_11933 934 US-09-10.0, Gapext 1.0 aaacggcaggaggttgttag		g pr	a ve	σ	agg 93	v Sec vs)
GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd. January 17, 2002, 16:26:57; Search time 118.22 Sec January 17, 2002, 16:26:57; Search time 119:33 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11933 US-09-740-211-13_COPY_11000_11934 US-09-740-518-13 Seque 100.0 11933 4 US-09-740-618-13 Seque 100.0 11933 4 US-09-7418-500-75 Seque 100.0 11933 4 US-09-7418-750-71 Seque 100.0 11933 4 US-09-7418-750-71 Seque 100.0 11933 4 US-09-7418-750-71 Seque 100.0		ed,				s/sec
Copyright (c) 1993 - 2000 Compugen Ltd. Copyright (c) 1993 - 2000 Compugen Ltd. January 17, 2002, 16:26:57 : Kearch time 118.22 Seconds (vithout alignments) 1994 1 aacggcaggaggttgtagcttcaagctgcccctgcagg 934 1 aacggcaggaggttgtagcttcaagctgcccctgcagg 934 2 1aacggcaggaggttgtagcttcaagctgcccctgcagg 934 1 aacggcaggaggttgtagcttcaagctgcccctgcagg 934 2 logop 10.0						

	USES CHES	000000 0000
ouer Best Matc Oy Oy Db 1 Db	SULT Sequen Sequen Patent GENERA GENERA GENERA GENERA GENERA FILE CURR EARL EARL EARL EARL EARL EARL EARL EA	22 22 23 23 23 23 23 23 23 24 24 24 24 24 24 24 24 24 24 24 24 24
y Ma Loc thes 1 1000 61 1060 121 121 11120 181	JUJ 1 Jujuance 13, 1 Applicant 1000 Applicant 1000 Applicant 1000 Jujuance 111 EARLIER APPLEARLIER FILL EARLIER FILL AUMBER OF S SOFTWARE: P SOFTWARE: P SOFTWARE: D AORGANISM: FEATURE OTHER INFO OTHER I	28.6 28.6 28.6 28.6 28.4 28.4 28.4 28.2 28.2 28.2 28.2 28.2
100.0%; Score Similarity 100.0%; Pred. 4; Conservative 0; Mis (conservative 0; Mis (conservative))	Application US/09470618 Application US/09470618 AD5560 AD5560 AD7501 AD7501 AD800 AD80	3.1 1955 2 US-08-478-373-114 3.1 1955 3 US-08-483-577A-114 3.1 1955 3 US-08-483-577A-114 3.1 1955 3 US-08-897-438-114 3.1 1955 3 US-08-897-438-114 3.0 1955 2 US-08-882-704A-1 3.0 403765 4 US-09-103-8040A-2 3.0 4403765 4 US-09-103-8040A-1 3.0 1142 1 US-08-105-493-87 3.0 1142 1 US-08-709-209-87 3.0 1142 1 US-08-709-209-87 3.0 1142 1 US-08-709-209-87 3.0 1142 1 US-08-719-219-87 3.0 1442 1 US-08-321-978-12-87 3.0 2696 1 US-08-321-978-1 3.0 2696 1 US-08-321-978-1 3.0 2696 1 US-08-321-978-1 3.0 3068 1 US-08-321-978-1 3.0 3068 1 US-08-950-720A-7 3.0 405 3 US-08-950-720A-7
934; DB 4; Length 11935; NO. 0; Indels 0; Gaps 0 matches 0; Indels 0; Gaps 60 ttgccacccgctttcacgaaggtcatgtgta 60	of Fa	sequence 114, App Sequence 114, App Sequence 114, App Sequence 114, App Sequence 1, Appli Sequence 2, Appli Sequence 2, Appli Sequence 87, Appl Sequence 87, Appl Sequence 1, Appli Sequence 3, Appli

0;

US-09-364-862-13

```
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 13
LENGTH: 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                            EARLIER APPLICATION NUMBER: 60/104,994
EARLIER FILING DATE: 1998-10-20
NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/364,862
CURRENT FILING DATE: 1999-07-30
EARLIER APPLICATION NUMBER: 60/125,974
EARLIER FILING DATE: 1999-03-24
                                                                                                                                                                                                                            TITLE OF INVENTION: ADENO-ASSOCIATED VECTORS FOR EXPRESSION OF FACTOR VIII
TITLE OF INVENTION: BY TARGET
FILE REFERENCE: AVIGEN 03743
                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                           Sequence 13, Application US/09364862 Patent No. 6221349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
OTHER INFORMATION: Description of Artificial Sequence:
                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                            FEATURE:
                                                                        TYPE: DNA
                                                                                                                                                                                                                                                                                                                      APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                                                                                                                                                               -09-364-862-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               11900 tyecttagtatttccttcaagctgcccctgcagg 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11840 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11780 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 11839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11720 tgaatageegaegeetttgeatetteegeaetetttetegaeaaeteteeeeeaagete 11779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11660 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 11719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11600 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 11659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11540 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 11599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901 tgccttagtatttccttcaagctgcccctgcagg 934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11480 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 11539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11420 gtagtaagcgccgcctcttttcatctcactaccaccacgagcgaattaacccatcgttga 11479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721 tgaatagoogaogootttgoatottoogoaototttotogacaactotoococacagoto 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11360 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 11419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11300 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 11359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 gtagtaggcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 totgoctgogatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
synthetic
```

```
RESULT
                                                  DЬ
                                                                                                               дb
                                                                                                                                                                            В
                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                          11900 tgccttagtatttccttcaagctgcccctgcagg 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                            11840 cgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctt 11899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                           11780 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccgg 11839
                                                                                                                                                                                                        11720 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 11779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                      11660 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 11719
                                                                                                                                                                                                                                                                                                                                   11600 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 11659
                                           901 tgccttagtaftfccttcaagctgcccctgcagg 934
                                                                                             841 cytogogycactacygycaataatcogycataagcyaatyttycygagcacttycagtacctt 900
                                                                                                                                                                                                                                                                                                                                                                                                11540 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 11599
                                                                                                                                                                                                                                                                                                                                                                                                                                                             11480 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 11539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781 tgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccccgg 840
                                                                                                                                                                                                                         721 tgaatagccgacgcctttgcatcttccgcactctttctcgacaactctcccccacagctc 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11360 tctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcg 11419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11300 cgttatgcaggctctaactattacctgcgaactgtttcgggaattgcattttgcagacctc 11359
                                                                                                                                                                                                                                                                                      661 ttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatcct 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                   601 tttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtggg 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11240 tetteaegattategaeteaatgetettaeetgitgigeagatataaaaaateeegaaac 11299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11180 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 11239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 934;
                                                                                                                                                                                                                                                                                                                                                                                                                 541 gtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttc 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 gtcaaattttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11120 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 11179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361 totgootgogatggttggagttocagacgatacgtogaagtgaccaactaggcggaatcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11000 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 11059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcatttttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 tottoacgattatcgactcaatgotottacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 ttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 tgggttgttgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h 100.0%; Score 934; D) .Similarity 100.0%; Pred. No. 0; O) ... Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _ DB 4; Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
```

US-08-232-463-14

Sequence 14,

Application US/08232463

Patent No. 5670367 GENERAL INFORMATION:

DORNER, F.

```
US-08-232-463-14
                                                                                                                                                                                                                           В
                                                                                                                                                                                               δõ
                                                                                                                                      QΥ
                                                                                                                                                                     g
                                                                                                              Вþ
                                                                                 8
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKMER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (703)683-4109
TELEX: 899149
TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 29,768
REGISTRATION NUMBER: 09,768
REFERENCE/DOCKET NUMBER: 07
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                      IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME:
                                                                                                              670 gtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatccttgaatagcc 729
                                                      730 gacgcctttgcatcttccgcactctttctcgacaactctccccccacagctctgttttggc 789
                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: sing
1298 YYYYYYYYYYYYYYYYYYY 1317
                                                                                                                                                                                                                                                                                  4.0%; Score 37.6; DB 1; Length 7218; Local Similarity 2.7%; Pred. No. 0.015; Local Similarity 2.7%; Mismatches 101; Indels 0; hes 7; Conservative 152; Mismatches 101; Indels
                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                       790 aatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccggcgtcgcggc 849
                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                 850 actacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctttgccttagt 909
                          910 atttccttcaagctgcccct 929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۷A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BENT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                         pTZgpt-F1s
                                                                                                                                                                                                                                                                                                                                                                                                                                                   7218 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stephen A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UMBER: EP 91 114 300.6
26-AUG-1991
                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29,768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30472/114 IMMU
                                                                                                                                                                                                                                                                                                         0; Gaps
```

```
US-09-045-301-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; NAME/KEY: CDS
; LOCATION: (1809)..(2252)
US-09-045-301-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence 1, Application US/09045301A patent No. 6265388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Fett, James W.
APPLICANT: Olson, Karen A.
APPLICANT: Olson, Karen A.
TITLE OF INVENTION: Antisense Inhibition of Angiogenin Expression
FILE REFERENCE: 10498/05286
                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Sequence 11, Application US/09195868
; Patent No. 6090621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
US-09-195-868-11/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT FILING DATE: 1998-03-20
EARLIER APPLICATION NUMBER: 60/041182
EARLIER FILING DATE: 1997-03-21
NUMBER OF SEQ ID NOS: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/045,301A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH: 4668
                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4525 gacctgccgatggtactggcacctgagcaagcattcctagtcctttttggtctgggcctc 4584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        378 gagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaagcgccgcctc 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4645 ttatcc 4650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438 ttttcatctcactaccacaacgagcgaattaaccccatcgttgagtcaaatttacccaatt 497
                                                                                                                                                                                                                                                                                                                                             APPLICANT: KAYANAUGH MD, MICHAGU
APPLICANT: POT PH.D., DAVID
APPLICANT: WILLIAMS MDPHD, LEWIS T.
APPLICANT: WILLIAMS MDPHD, LEWIS T.
APPLICANT: WILLIAMS MDPHD, LEWIS T.
TITLE OF INVENTION: SIGNALING INOSITOL POLYPHOSPHATE
TITLE OF INVENTION: 5-PHOSPHATASES (SIPS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         498 ttattc 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              y Match 3.4%; Score 31.6; DE Local Similarity 53.2%; Pred. No. 1.4; Local Similarity 0; Mismatches 1es 67; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                    CURRENT APPLICATION DATA:
ATTORNEY/AGENT INFORMATION:
                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTMARE: Patentin Release #1.0
                                                                                                                                                                                                        COUNTRY: U.
ZIP: 94608
                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                            STATE:
                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                CLASSIFICATION:
APPLICATION NUMBER: US/09/195,868
                                                                    FILING DATE:
                                                                                     APPLICATION NUMBER:
                    FILING DATE
                                                                                                                                                                                                                                                               EMERYVILLE
                                                                                                                                                                                                                                              CA
                                                                                                                                                                                                                                                                                  4560 HORTON STREET
                                                                                                                                                                                                                                                                                                                                                                                                                   KAVANAUGH MD, MICHAEL
                                                                                                                                                                                                                               USA
                                                                                                                         PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                   CHIRON CORPORATION
                                                                                                                                                                            Floppy disk
                                                                                              US/09/195,868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Length 4668;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
```

REGISTRATION NUMBER:

LEIGH H. ER: 36,831

FIRESTONE,

```
TOPOLOGY: linear MOLECULE TYPE: CDNA US-09-195-868-12
                                                                        TELEFAX: 510-655-3542
INFORMATION FOR SEO ID NO: 12:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                    ZIP: 94608

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, V
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 12
Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: linear MOLECULE TYPE: CDNA US-09-195-868-11
                                                                                                                                  TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -09-195-868-12/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 2940 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
MOTECULE ENTER:
                                      STRANDEDNESS:
                                                           TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: SIGNALING INOSITOL PO-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: KAVANAUGH MD, MICHAEL APPLICANT: POT PH.D., DAVID APPLICANT: WILLIAMS MDPHD, LEWIS T.
                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                  NAME: FIRESTONE, LE-
REGISTRATION NUMBER:
                                                                                                                            TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1581 ATAGCACC 1574
                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                  APPLICATION NUMBER: US/09/195,868
                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1641 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 1582
                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: US
ZIP: 94608
                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: 510-923-2707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'Match 3.3%; Score 31.2; DB 3; Length 2940; Local Similarity 66.2%; Pred. No. 1.5; es 45; Conservative 0; Mismatches 23; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER:
                                                  i: 3691 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12,
                                                                                                                                                                             FIRESTONE, LEIGH H.
                                                                                                                                                                                                                                                                                                                                                                                                           EMERYVILLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6090621 US/09195868
                                                                                                                                                                                                                                                                                                                                                                                               CA
                                                                                                                                                                                                                                                                                                                                                                                                                4560 HORTON STREET
                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                         510-923-2707
                                                                                                                                                                                                                                                                                                                                                                                                                               CHIRON CORPORATION
                                    single
                                                                                                                                                                                                                                                                                    Release #1.0, Version #1.30
                                                                                                                                                                                                                                                              US/09/195,868
                                                                                                                                                                                                                                                                                                                                                                                                                                                               33
                                                                                                                                                                  36,831
                                                                                                                                                   1182.004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1182.004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INOSITOL POLYPHOSPHATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

0,

```
δÃ
                                                   В
                                                                                                                                                                                                   ; LOCATION: 17..2944
US-08-560-005-1
                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-326-2400
TELEFAX: 415-326-2422
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 4147 base pairs
                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-560-005-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
               1648 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/08560005
Patent No. 6001354
                                  549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgtggc 608
                                                                                                                                                                                                                                                               MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Dow, Karen B.
REGISTRATION NUMBER: 29,(
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 3.3%; Score 31.2; DB 3; Length 3691; Best Local Similarity 66.2%; Pred. No. 1.7; Matches 45; Conservative 0; Mismatches 23; Indels 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                              y Match
Local Similarity 66.2%; pred. No. 1.9;
hes 45; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Pot. David A.
APPLICANT: Williams, Lewis T.
APPLICANT: Williams, Lewis T.
APPLICANT: Jefferson, Anne Bennett
APPLICANT: Jefferson, Anne Bennett
TITLE OF INVENTION: No. 6001354el Grb2 Associating Protein and Nucleic TITLE OF INVENTION: Acids Encoding Therefor NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew
STREET: One Market Plaza, Steuart Tower, Suite 2000
CTTY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                        NAME/KEY:
                                                                                                                                                                                                                                                                                                TOPOLOGY
                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2332 ATAGCACC 2325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2392 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 2333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94105
                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/560,005
                                                                                                                                                                                                                                                                                                                                                                                                                                                         29,684
                                                                                                                                                                                                                                                                                                                                                                                                                                    2307K-0624000
                                                                                                                          DB 3; Length 4147;
                                                                                            23;
                                                                                            Indels
                                                                                          0;
                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
```

Tue Jan 22 15:12:21 2002

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-418-540-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence 1, Application US/09418540 Patent No. 6296848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1588 ATAGCACC 1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
;
US-09-418-540-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: No. 6296848el Grb2 Assortitle OF INVENTION: Acids Encoding Therefor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Williams, Lewis T.
APPLICANT: Jefferson, Anne Bennett
APPLICANT: Jefferson, Anne Bennett
APPLICANT: Majerus, Philip W.
APPLICANT: Majerus, Philip W.
APPLICANT: Najerus, Philip W.
APPLICANT: Najerus, Philip W.
APPLICANT: No. 6296848el Grb2 Associating Protein and Nucleic APPLICANTION: No. 6296848el Grb2 Associating Protein APPLICANTION: No. 629684el Grb2 Association Protein APPLICANTION PROTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                     RESULT 9
US-08-664-962B-7/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Query Match
G6.2%; Pred. No. 1.9;
Best Local Similarity 66.2%; Pred. No. 1.9;
Matches 45; Conservative 0; Mismatches 23; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 415-326-2422
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
                         Sequence 7, Application US/08664962B
Patent NO. 6218162
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 17-NOV-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-326-2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC COMPATIBLE PC-DOS/MS-DOS OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1648 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: DOW, Karen B. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US OF APPLICATION NUMBER: US OF THE NUMBER: US
                                                                                                                                                                                                                                                                                                                                                     1588 ATAGCACC 1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            549 catgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttttgtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                               609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                One Market Plaza, Steuart Tower, Suite 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pot,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4147 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Townsend and Townsend and Crew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              415-326-2422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17..2944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 David A.
               Krystal, Gerald
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 08/560,005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/418,540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29,684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2307K-0624000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

```
US-08-664-962B-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: SH2-CONTAINING INOSITOL-PHOSPHATASE NUMBER OF SEQUENCES: 24
CORRESPONDENCE ADDRESS: GOULD ADDRESSE: MERCHANT 6 GOULD
                                                                                                                                                                                                                RESULT 10
US-09-311-743-7/c
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                     Sequence 7, Application US/09311743
Patent No. 6238903
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 612-332-9081 7: INFORMATION FOR SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION NUMBER: US/08/664,962B APPLICATION NUMBER: US/08/664,962B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 66.2
Best Local Similarity 66.2
Conservative
                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 4870 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: 3100 NO. OCCUTY: Minneapolis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Mueller, Douglas 1
REGISTRATION NUMBER: 30,
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                          2377 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 2318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                       2317 ATAGCACC 2310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                    549 catgotgotaacgtgtgacogcattcaaaatgttgtctgcgattgactcttctttgtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM:
                                                                                                                                                                                                                                                                                                   609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55402-4131
                                                                                                                                   APPLICANT: Krystal, Gerald
TITLE OF INVENTION: SH2-CONTAINING INOSITOL-PHOSPHATASE
NUMBER OF SEQUENCES: 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minnesota
ZIP: M5H 3Y2
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3100 No. 6218162west Center, 90 South Seventh Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hSHIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                    CITY: Toronto
                                                                                              STREET: 40 King Street West
                                                                                                           ADDRESSEE: BERESKIN & PARR
                                                        COUNTRY: Canada
                                                                        STATE: Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               612-332-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
113..3673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                         3.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30,300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M&G 7933.49-US-01
                                                                                                                                                                                                                                                                                                                                                                                             Score 31.2; DB 4; Length 4870; Pred. No. 2; 0; Mismatches 23; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

0,

```
EARLIER APPLICATION NUMBER: 60/064,491
EARLIER FILING DATE: 1997-11-06
NUMBER OF SEO ID NOS: 33
SOFTWARE: FastSEQ for Windows Version 4.0
LENGTH: 289
                                                                                                                                                                                                                                                                                                                                                       US-09-007-005-17/c
OTHER INFORMATION: n = A,T,C or G
                                                               TYPE: RNA
ORGANISM: Artificial Sequence
                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/007,005B CURRENT FILING DATE: 1998-01-14 EARLIER APPLICATION NUMBER: 60/035,963 EARLIER FILING DATE: 1997-01-27
                   NAME/KEY: misc_feature LOCATION: (1)...(289)
                                             OTHER INFORMATION: Translation template
                                                                                                                                                                                                                 TITLE OF INVENTION: SELECTION OF PROTEINS USING RNA-PROTEIN FILE REFERENCE: 00786/350003
                                                                                                                                                                                                                                                                                                                          Sequence 17, Application US/09007005B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-311-743-7
                                                                                                                                                                                                                                                                     APPLICANT: Roberts, Richard W. APPLICANT: Liu, Rihe
                                                                                                                                                                                                                                                                                                APPLICANT: Szostak, Jack W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                    2317 ATAGCACC 2310
                                                                                                                                                                                                                                                                                                                                                                                                                             2377 CAAGCAGCTCGAGTGGAACTCCAGGTAGAATTTGGTCTGGGACTTGGTCTTCAATGTGGC 2318
                                                                                                                                                                                                                                                                                                                                                                                                                     609 attgcacc 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                549 catgotgotaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 416-361-1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            es 45; Conserv
                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE DESCRIPTION: SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: 416-364-7311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 4870 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLONE: hSHIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/311,743 FILING DATE: 14-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.3%; Score 31.2;
66.2%; Pred. No. 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .3673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4; Length 4870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23; Indels
                         В
                                                                            В
                                                                                                                         Matches
                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-007-005-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
```

В

```
; OTHER INFORMATION: n = A,T,C or G
US-09-244-796-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER APPLICATION NUMBER: 097007,005
EARLIER FILING DATE: 1998-01-14

NUMBER OF SEQ ID NOS: 33

SEQ ID NO 17

LENGTH: 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-244-796-17/c

Sequence 17, Application US/09244796

Patent No. 6281344

GENERAL INFORMATION:
127 SANANASANANASANANASANANASANANASANANASANANASANANASANANASANANASANANA 721
                                 825 tgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcgaatgttgcga 884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/244,796 CURRENT FILING DATE: 1999-02-05 EARLIER APPLICATION NUMBER: 60/035,963 EARLIER FILING DATE: 1997-01-27 EARLIER APPLICATION NUMBER: 60/064,491 EARLIER FILING DATE: 1997-11-06
                                                                     187 YNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYS 128
                                                                                                      765 ctctcccccacagctctgttttggcaatatcaaccgcacggcctgtaccatggcaatctc 824
                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: Translation template
                                                                                                                                          247 YGYAYGYTYTYAYCYGYCYAYGYCYTYGYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYS 188
                                                                                                                                                                            705 egettgetggeateettgaatageegaegeetttgeatetteegeaetetttetegaeaa 764
                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (1)...(289)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: SELECTION OF PROTEINS USING RNA-PROTEIN FILE REFERENCE: 00786/350007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: SZOSTAK, Jack W. APPLICANT: Roberts, Richard W. APPLICANT: Liu, Rihe
                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            885 gcacttgcagtacctttgccttagtatttccttcaagctgcccctgc 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127 YNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNY 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         825 tgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcgaatgttgcga 884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             187 SANANASANANASANANASANANASANANASANANASANANASANANASANANASANANA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67 YNYNYSYNYNYCYAYTYTYGYTYAYÀYTYTYGYTYAYAYAYTYAYAY 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            765 ctctcccccacagctctgttttggcaatatcaaccgcacggcctgtaccatggcaatctc 824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                247 YGYAYGYTYTYAYCYGYCYAYGYCYTYGYSYNYNYSYNYNYSYNYNYSYNYNYSYNYNYS 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                705 cgcttgctggcatccttgaatagccgacgcctttgcatcttccgcactctttctcgacaa 764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
les 13; Conserv
                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                       3.3%; Score 31; DB 4; Length 289; 5.7%; Pred. No. 0.45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.3%; Score 31; DB 4; Length 289;
5.7%; Pred. No. 0.45;
ative 95; Mismatches 119; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4; Length 289;
                                                                                                                                                                                                                 0;
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-487-890A-112/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 112, Application US/08487890A patent No. 5708149
                                                                                                                                                                                    US-08-487-890A-112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL
                          QУ
                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      885 gcacttgcagtacctttgccttagtatttccttcaagctgcccctgc 931
                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/487,890A
FILING DATE: 07-JUN-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: v...
STREET: v...
TTTY: Toronto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67 YNYNYSYNYNYCYAYTYTYGYTYAYAYTYYGYTYAYAYAYTYAYGY 21
                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08/175,116
FILING DATE: 29-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,968
APPLICATION NUMBER: US 08/148,968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 08-NOV-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 10 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
LENGTH: 1951 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: Canada
ZIP: M5G 1R7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 07
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                           NAME: Stewart, Michael REGISTRATION NUMBER: 2
                                                       985 GCTGTTCTTTGGCACTAAATACCCCAAAAACTTTTTTATCGCTAAGCTAAAAATTTTCCCC 926
                                                                          777 gctctgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgccc 836
925 CTAGTTCTTCAGCATTAGGCCCATAAAAACCACCTTCTAATCTTCC 880
                         837 ccggcgtcgcgqcactacggcaataatccgcataagcgaatgttgc 882
                                                                                                                                                                                                                                                                                                                                      TELEFAX:
                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: 1..1
                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                           Watch 3.3%; score 30.8; DB 1; Length 1951; Local Similarity 55.7%; Pred. No. 1.6;
                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION:
                                                                                                                       59:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6th Floor, 330 Unviersity Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Murdin, Andre
Klein, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gray-Owen, Scott
Yang, Yan-Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chong, Pele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schryvers, Anthony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Harkness, Robin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 oosmore,
                                                                                                                                                                                                                                                                                                                                   E: (416)
(416) 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sim & McBurney
                                                                                                                     Conservative
                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                         1..1890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                                                                                                                                                                                                 single
                                                                                                                                                                                                                                                                                                                                             595-1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Andrew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transferrin Receptor Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sheena
                                                                                                                                                                                                                                                                                                                                                        595-1155
                                                                                                                                                                                                                                                                                                                                                                                                24,973
                                                                                                                                                                                                                                                                                                                                112:
                                                                                                                                                                                                                                                                                                                                                                                         1038-466 MIS:jb
                                                                                                                          0; Mismatches 47;
                                                                                                                                      0; Gaps
                                                                                                                                          0
```

₽

```
US-08-478-435-112/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 112, Application US/08478435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                              US-08-478-435-112
                                                Db
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                           3.3%;
Best Local Similarity 55.7%;
Matches 59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                            TELEFAX: (416) 595-1163
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 08-NOV-CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION INFORMATION:
TELEPHONE: (416) 595-1155
                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS_MS-DOS SOFTWARE: Patentin Release #1.0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/0
FILING DATE: 07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/175,116 FILING DATE: 29-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 08/337,483
                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 08-NOV
                                                               777 gctctgttttggcaatatcaaccgcacggcctgtaccatggccatctctgcatcttgccc 836
                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER:
                                                                                                                                                                               NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                         NAME:
925 CTAGTTCTTCAGCATTAGGCCCATAAAAACCACCTTCTAATGTTCC 880
                      837 ccggcgtcgcggcactacggcaataatccgcataagcgaatgttgc 882
                                                 TOPOLOGY:
                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              M5G 1R7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Sim & McBurney
Suite 701, 330 Un
                                                                                                                                                                                                                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                            Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murdin, Andrew
Klein, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gray-Owen, Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chong, Pele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Harkness, Robin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yang, Yan-Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Schryvers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Loosmore,
                                                                                                                                                                                                                                                          1951 base pairs
                                                                                                                                                                              1..1890
                                                                                                                                                                                              CDS
                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                       08-NOV-1993
                                                                                                                                                                                                                                    single
                                                                                                                                                                                                                                                                                                                                                             Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transferrin Receptor Genes
147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sheena
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anthony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   330 University Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/478,435
                                                                                                                                                                                                                                                                                                                                                                                                    US 08/148,968
                                                                                                                                                                                                                                                                                                                                               24,973
                                                                                                                                                                                                                                                                                                                                        1038-462 MIS:V9
                                                                                                             0;
                                                                                                                      Score 30.8; DB 2; Length 1951; pred. No. 1.6;
                                                                                                           Mismatches 47; Indels
                                                                                                                      0; Gaps
```

0;

```
Search completed: January 17, 2002, 16:27:13 Job time: 12343 sec
                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                     ; NAME/KEY: CDS; LOCATION: 1..1
US-08-337-483-112
                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Stewart, Michael I REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 1038-
TELECOMMUNICATION INFORMATION: TELEPHONE: (416) 595-1155
TELEPHONE: (416) 595-1163
INFORMATION FOR SEQ ID NO: 112:
LENGTH: 1951 base pairs
TYPE: nucleic acid
STRANUEDNESS: single
                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
US-08-337-483-112/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/3
FILING DATE: 08-NOV-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: STEWART, Michael I
                                                                                 925 CTAGTTCTTCAGCATTAGGCCCATAAAAAACCACCTTCTAATGTTCC 880
                                                                                                      837 ccggcgtcgcggcactacggcaataatccgcataagcgaatgttgc 882
                                                                                                                                                                     777 gctctgttttggcaatatcaaccgcaccggcctgtaccatggcaatctctgcatcttgccc 836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: LOSSMORE, Shoena
APPLICANT: LOSSMORE, Shoena
APPLICANT: Harkness, Robin
APPLICANT: Schryvers, Anthony
APPLICANT: Chong, Pele
APPLICANT: Gray-Owen, Scott
APPLICANT: Yang, Yan-Ping
APPLICANT: Murdin, Andrew
APPLICANT: Klein, Michel
ITILE OF INVENTION: Transferrin Receptor Genes
NUMBER OF SEQUENCES: 147
                                                                                                                                                     985 GCTGTTCTTTGGCACTAAATACCCCAAAAACTTTTTTATCGCTAAGCTAAAAATTTTCCCCC 926
                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY: linear FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 112, Application US/08337483 Patent No. 5922562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: Canada
2IP: M5G 1R7
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL
                                                                                                                                                                                                                              y Match
3.3%; Score 30.8; DB 2; Length 1951;
Local Similarity 55.7%; Pred. No. 1.6;
hes 59; Conservative 0; Mismatches 47; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: Suite 70
CITY: Toronto
STATE: Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Sim & McBurney
STREET: Suite 701, 330 Unviersity Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                   1..1890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/08/337,483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1038-410 MIS:jb
                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                              0,
```

_

OM nucleic - nucleic search, using sw model Run on: Title: Total number of hits satisfying chosen parameters: scoring table: Sequence: perfect score: Minimum DB seq length: 0
Maximum DB seq length: 2000000000 Post-processing: Minimum Match 0% Database : pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution. January 17, 2002, 14:58:45; Search time 3755.78 Seconds (without alignments) 2672.296 Million cell updates/sec US-09-740-211-13_COPY_11000_11933 934 22: 44:: 55:: 66:: 77:: 110:: 110:: 114:: 115:: 116:: 117:: IDENTITY_NUC Gapext 1.0 1 aaacggcaggaggttgttag.....cttcaagctgcccctgcagg 934 GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd. 11351937 seqs, 5372889281 residues Maximum Match 100% Listing first 45 summaries em_esthum:* em_htc:* em_estov:* em_estro:* em_estba:* em_estpl:* em_estom:* em_estin:* em_estfun:* gb_est2:* gb_est1:* em_gss_hum:* gb_gss:* gb_htc:* em_gss_inv:* em_gss_fun:* em_gss_other:* em_gss_vrt:* em_gss_rod:* em_gss_pro:* em_gss_pln:* 22703874

ALIGNMENTS

SUMMARIES

c 9 10 11 12	8 7	о •		, , , 11	Result No.
420.6 419.4 387.2 380.2	454.2	531.4	, , , , , , ,	724.4	score
45.0 44.9 41.5 40.7	48.8	55.0	63.0	77.6 64.8	Query Match Length DB
685 688 775	743 500	546 714	589 656	734 1 628 1	ength DB
11 BF 11 BI 10 AV	10 BE	10 AW	10 AI	O AV	1
BF634302 BI269141 AV404200	BE42013/ AV403989 BF328036	AV404019	BG45166/ AI489217	AV404408 AI065168	1
					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					1
BF 034302 BI269141 AV404200	AV403989 BF328036	AV404019 BE420137	AI489217 AW624097	AI065168 BG451667	Description
NF003A05I NV404200	AV403989 QV3-BN014	AV404019 WWS020.E9	EST322042	ESTTRKA-8 NF092G10D	AV404408

			0 (_			O		c				c	O		O		a								c					
C 44 C 45	42	41	40	ر ع	38	37	36	35	34	ω ω	32	u u	SC	29	28	2 /	0 0	0.0	24) K	22	12	20	19	18	17	16	15	14	3		
61.2																		0	700	7.007	* 67	204		300	310.	3 4 4 4	330.	3 2 2 6	3/1.	1	1	
7.2 6.6					-	. ــ		- ا			4 د	٠,	٠,	٠.	۱ ر	ې د	2 1	26.3	27.9	30.3	30.7	21 L	ب ۱ د ۱ د	21 6) () (20 C	л c		, c		9	
578 654	906	578	л 393 393	100	101	110) () (401	2	193	179	242	175	$\frac{1}{211}$	215	475	248	246	291	501	366	606	558	305	408	644	329	376	995	498	272	
8 11 4 11	13	11	L-	٠ <u>١</u>	10	<u> </u>	1	<u>-</u>	_	11	10	10	10	11	11	11	11	11	11	10	11	11	11	0	-	Ξ	6	0	0	0	ب	
B1269244			BG102333						C22255	C22175	AI490216	AI898370	AV404308	BG312975	BF634201	BF934675	BI268786	BG459413	N84801	Ш		BI268699	В	AW619942	BI268709	BI268701	BE353471	BE434444	\V749	A84157	3G31247	
BI26924	BI263664	AI.147672	BG10233	BG#C+U+	DC / 5.1 5.1 C	190850m	11110007	BF 03/0/3	00057675	C22255 C	C22175 C	AT490216	A1898370	AV404308 AV40430	BG312975	BF634207	BF934675	в1268786	BG459413	N84801 J1	BE458797	BI268418	в1268699	B1268787	AW619942	BI268709 I	B1268701 1	_	-	_	_	_
4 NEOUSHIOI	4 NF088A07P	2 Anopheles	9 RHIZ2 10_		NF108H04D	EST279718	117 - R - C2 -	ild11fs.r	OV2 20 D0	22255 Miya	22175 Miya	EST248542	EST26/813	AV404308	WHE2412_U	NF074G04D	RC4-NT100	NF015B02G	M79B19STM	N84801 J1047F Huma	EST414089	NF004H03G	NF023B06G	NF015C05G	8027 MARC	NF022F01G	NF023B08G	EST353848	EST405522	AV749428	MB3D6AA9E	WHE2408_F

RESULT AV404408 DEFINITION SOURCE KEYWORDS VERSION ACCESSION REFERENCE COMMENT FEATURES ORGANISM JOURNAL TITLE AUTHORS source AV404408 734 bp mRNA EST 06-FEB-2000 AV404408 Bombyx mori pheromone gland Shuko x Ryuhaku newly-eclosed adult Bombyx mori cDNA clone pg--0946 T3, mRNA sequence. Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia; Bombycoidea; Bombycidae; Bombyx.

[(bases 1 to 734) AV404408.1 GI:6908496 Bombyx mori cDNA Unpublished (2000) domestic silkworm. EST Mita,K., Morimyo,M., Shimada,T., Okano,K. and Maeda,S. Genome Research Group Research Group National Institute of Radiological Sciences National Institute of Radiological Sciences Anagawa 4-9-1, Inage, Chiba 263-8555, Japan Email: kmita@nirs.go.jp method:uni-directional, sequence direction:sequenced from T3 primer (5' -> 3') Project='Silkworm Genome Program in MAFF, and Research for the Future Program in JSPS'. see 'SilkBase', Future Program in JSPS'. see 'SilkBase', for whole ESTdb. http://www.ab.a.u_tokyo.ac.jp/silkbase/, for whole ESTdb. /organism="Bombyx mori" /strain="Shuko x Ryuhaku" /db_xref="taxon:7091" /clone="pg--0946" /clone=lib="Bombyx mori pheromone gland Shuko x Ryuhaku newly-eclosed adult" Location/Qualifiers

/sex="female"

```
KEYWORDS
                                                                        DEFINITION
         SOURCE
                                              ACCESSION
                                                                                                  AI065168/c
                                    VERSION
                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                           ΩV
                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                           ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                  721 TGCAGTACCTTTGC 734
                                                                                                                                                                890 tgcagtacctttgc 903
                                                                                                                                                                                         661 CTTGCCCCCCGCGTCGCGCACTACGGCAATAATCCGCCATAAGCGAATGTTGCGAGCACT
                                                                                                                                                                                                     830 cttgcccccggcgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcact 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                         770 ccccacagctctgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcat 829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                             601 CCCCACAGCTCTGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCAT 660
                                                                                                                                                                                                                                                                                                                710 gctggcatccttgaatagccgacgcctttgcatcttccgcactctttctcgacaactctc 769
                                                                                                                                                                                                                                                                                                                                                         481 GACCAGGTGGGTTAGGGTTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTT 540
                                                                                                                                                                                                                                                                                                                                                                        650 gaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgctt 709
                                                                                                                                                                                                                                                                                                                                                                                                                          590 attgactcttctttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgt 649
                                                                                                                                                                                                                                                                                                                                                                                                             421 ATTGACTCTTCTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361 TGTTGCCATACGTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCG 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                530 tgttgccatccgtggcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcg 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    470 cccatcgttgagtcaaatttacccaattttattcaataagtcaatatcatgccgttaata 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 CCCATCGTTGAGTCAAATTTACCCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATA 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          410 aggcggaatcggtagtaagcgccgcctctttcatctcactaccacaacgagcgaattaa 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 AGGCGGAATCGGTÄGTÄÄGCGCCCCCCTCTTTCATCTCACTACCACAACGAGCGAATTAA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                350 ttgcagacctctctgcctgcgatggttggagttccagacgatacgtcgaagtgaccaact 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 TTGCAGACATCTCTGCCTGCAATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        170 teeggttetgetteeggtattegettaatteageacaaeggaaagageaetggetaacea 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                   GCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGGCACAAATCTT 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 TCCGGTTCTGCTTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCA 60
                                 AI065168 628 bp mRNA EST
ESTTRKA-8 Rat Lambda Zap II Library, Stratagene #936501 Rattus
                  AI065168.1 GI:3340575
EST.
Norway rat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCTCGCCGACTCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99ctcgccgactcttcacgattatcgactcaatgctcttacctgttgtgcagatataaaa 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="pheromone gland"
/dev_stage="newly-eclosed adult"
200 c 160 g 201 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77.6%; Score 724.4; DB 10; Length 734; 99.2%; Pred. No. 3.7e-211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
В
                                                                                                         Qy
                                                                                                                                                                         В
                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                            Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                         672 ttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatccttgaatagccga 731
148 TTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTTGCTGGCATCCTTGAATAGCCGA 89
                                                                                                               208 GCACCAGAGGGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGGTTGGGTAAGGT
                                                                                                                                                   612 gcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtgggttgggtaaggt 671
                                                                                                                                                                                                                                                                   552 gctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttctttgtggcatt 611
                                                                                                                                                                                                                                                                                                                                                                                   492 ccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtggcaatcat 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                      328 CCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCCGTGGCAATCAT 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      388 CGCCTCTTTTGATCTCACTACCACAACGAGCGAATTAACCCCATTGTTGAGTCAAATTTAC 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  432 cgcctcttttcatctcactaccaccaacgagcgaattaacccatcgttgagtcaaatttac 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      372 tggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtagtaagcgc 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      448 TGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCGGTAGTAAGCGC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            508 CTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTCTCTGCGGA 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         252 atcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaaccgttatgcagg 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192 gettaatteageaceaeggaaegageaetggetaaceaggetegeegaetetteaegatt 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            568 ATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAAATCCCGAACCCGTTATGCAGG 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            628 GTTTATTTCAGCNCANCGNAAAGAGCACTGGCTAACCAGGCTCGCCGACTCTTCACGATT 569
                                                                                                                                                                                                                               GCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTCTTTGTGGCATT 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: huangbr@cdm.imicams.ac.cn
Seq primer: M13 Forward Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: DongBing Lai
Mational Laboratory of Medical Molecular Biology
Chinese Academic of Medical Sciences & PUNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bingdong, L. and Huang, B.R.
Research on mechanism of p75NTR induced apoptosis (Bingdong, L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Métazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dongdan Santiao, Beijing 100005, P.R.China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            173 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 628)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86-10-65296406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Vector: Lambda Zap II; Site_1: EcoR I; Site_2: xho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="brain"
/dev_stage="6 weeks"
/lab_host="XL1-Blue MRF/"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /Organism="Rattus norvegicus"/strain="Sprague-Dawley"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="taxon:10116"/db_xref="tax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="pGEM-T/TRKA-8MF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Rat Lambda Zap II Library, Stratagene #936501"
/Sex="Male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64.8%; Score 605; DB 10; Length 628; 98.7%; Pred No. 1.5e-174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     138 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            166 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
BG451667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                 뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        792 tatcaaccgcacggcc 807
                                                                                                                                                                                                                            Вp
                                                                                                                                                                     δÃ
                                                   S
                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28 TATCAACAGCACGGCC 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   w
                                                                                                                                                                                                                                                                149 acgcctgtacgcatttggtgatccggttctgcttccggtattcgcttaattcagcacaac 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NEO92G10DT1F1081 Drought Medicago truncatula cDNA clone NEO92G10DT5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                  89 aartcaggacagtggctacggctcagtttgggttgtgctgttgctgggcggcgatg 148
269 acctgttgtgcagatataaaaaatcccgaaaccgttatgcaggctctaactattacctgc 328
| 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1
                                                                                                                 122 GGAAAGAGCACTGGCTAACCAGGCTCGCCGACTCTTCACGATTATCGACTCAATGCTCTT 181
                                                                                                                                              209 ggaaagagcactggctaaccaggctcgccgactcttcacgattatcgactcaatgctctt 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                   62 ACGCCTGTACGCATTTGGTGATCCGGTTCTGCTTCCGGTATTCGCTTAATTCAGCACAAC 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG451667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Medicago truncatula
Eukaryota; viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; viridiplantae; Streptophyta; Core eudicots;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Spermatophyta; Magnoliophyta; Pabaceae; Papilionoideae; Trifolieae;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BG451667.1 GI:13370461
                                                                                                                                                                                                                                                                                                                                                 2 AATTCAGGACAGACAGTGGCTACGGCTCAGTTTGGGTTGTGCTGGTTGCTGGGCGGCGATG 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Torrez-Jerez,I., Scott,A.D., Harris,A.R., Gonzales,R.A., Bell,C.: Flores,H.R., Inman,J.T., Weller,J.W. and May,G.D. Expressed Sequence Tays from the Samuel Roberts Noble Foundation Expressed Sequence Tays from the Samuel Roberts Noble Medicago truncatula drought library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plant Biology Division
The Samuel Roberts Noble Foundation
2510 Sam Noble Parkway, Ardmore, OK 73402, USA
Tel: 580 221 7391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plate: 092 row: G column: 10 seg primer: TCACACAGGAAACAGCTATGAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insert Length: 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               580 221 7380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gdmay@noble.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="prought"
/clone_lib="prought"
/tissue_type="plantlets"
/tissue_type="pooled timepoints"
/dev_stage="pooled timepoints"
/note="vector: Lambda Zap; Contains a mixture of entire
/note="vector: Lambda Zap; Contains a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Medicago_truncatula"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         timepoints.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                plantlets harvested in a series of days-post-watering
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63.0%; Score 588; DB 11; 1
100.0%; Pred. NO. 2.4e-169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            165 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gonzales, R.A., Bell, C.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 589;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
```

g

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             νо
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AI489217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           389 gatacgtcgaagtgaccaactaggcggaatcggtagtaagcgccgcctcttttcatctca 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302 GATACGTCGAAGTGACCAACTAGGCGGAATCGGTAGTAAGCGCCGCCTCTTTTCATCTCA 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 449 ctaccacaacgagcgaattaacccatcgttgagtcaaatttacccaattttattcaataa 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               509 gtcaatatcatgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgacc 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362 CTACCACAACGAGCGAATTAACCCATCGTTGAGTCAAATTTACCCAATTTTATTCAATAA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422 GTCAATATCATGCCGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGTGACC 481
                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542 TACAGCGGCTTAACAGTGCGTGACCAGGTGGGTTGGGTAAGGTTTGGG 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   629 tacaqcggcttaacagtgcgtgaccaggtgggttgggttagggtttggg 676
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA DEST 18-MAY-2001 EST 247556 tomato ovary, TAMU Lycopersicon esculentum cDNA clone cLED17L7, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lycopersicon esculentum; Streptophyta; Embryophyta; Tracheophyta; Bukaryota; Viridiplantae; Streptophyta; Embryophyta; endicots; core endicots; Spermatophyta; Magnoliophyta; endicotyledons; core endicots; Spermatophyta; Magnoliophyta; endicotyledons; core
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AI489217.1 GI:4384588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alcala,J., Vrebalov,J., White,R., Matern,A.L., Vision,T., Holt,I.E., Alcala,J., Vrebalov,J., Roming,C.M., Craven,M.B., Fujii,C.Y., Bowman, Liang,F., Upton,J., Roming,C.M., Venter,J.C., Martin,G.B., Tanksley,C.L., Nierman,W., Fraser,C.M., Venter,J.C., Martin,G.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Asteridae; euasterids I; Solanales; Solanaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: http://www.genome.clemson.edu/orders/index.html.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clemson Universit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100 Jordan Hall, Clemson, SC 29634, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Lycopersicon esculentum"
/cultivar="TA496"
                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:4081"
/clone="cLED17L7"
                                                                                                                                                                                                                                         /cioure_live_mearpel"
/tissue_type="carpel"
/tissue_type="5 days pre-anthesis to 5 days post-anthesis"
/dev_stage="5 days pre-anthesis to 5 days post-anthesis"
/dev_stage="5 days pre-anthesis to 5 days post-anthesis"
/dev_stage="5 days post-anthesis"
/lab_host="XLI-Blue MRF'"
/
                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="tomato ovary, TAMU"
                                                                                                                                                                                                                       directionally cloned
                                                                                                                                                                                                and 3' ends located at the EcoRI and
                                                                                                                                                                           respectively.
                          61.0%;
                             Score 569.6; DB 10; pred. No. 1.1e-163;
                                                                                                                                                                  153 g
                                                                                                                                                                        176 t
                                                                            Length 656;
```

and

```
619 GTGGGAATGATGCTGCTAACGTGTGAGCGGATTCAAAA 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 572; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      559 GTCAAATTTACCCAATTTTATTCAATAAGTCAATATCATGGCCGTAATATGTTGCCCATCC 618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481 gtcaaatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatcc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    499 GTAGTAAGCGCCGNCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCATCGNTGA 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 gtagtaagcgccgcctcttttcatctcactaccacaacgagcgaattaacccatcgttga 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439 réreccrecearegrirégaerrecaeacearacerceaagreaceaacraéecegaarce 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 tetgeetgegatggttggagttccagacgatacgtcgaagtgaccaactaggeggaateg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            319 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGTGCAGATATAAAAAAATCCCGGAAAC 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 tettcacgattatcgactcaatgetettacetgftgtgcagatataaaaaateeegaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            259 TřÓCGGTATTČGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGAC 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 ttccggtattcgcttaattcagcaccaggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                               5 prime sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199 réderrerecterréctedes des contra des contra de la reconstract 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                      Clemson University
100 Jordan Hall, C
                                                                                                                                                                                                                                                                 van der Hoeven,R.S., Bezzeredes,J.L., Matern,A.L., Holt,I.E., Liang, F., Hansen,T., Craven,M.B., Bowman,C.L., Ronning,C.M., Nierman,W., Generation of ESTs from tomato flower tissue, 3-8 mm buds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lycopersicon esculentum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST322042 tomato flower buds 3-8 mm, Cornell University Lycopersicon esculentum CDNA clone cTOB14J1 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AW624097.1 GI:7337124
                                                                                                                                                 http://www.genome.clemson.edu/orders/index.html
                                                             /organism="Lycopersicon esculentum"
/cultivar="TA496"
                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    546 bp
                                                                                                                                                                                        Clemson, SC 29634, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                           REFERENCE
                                                                                                                                 SOURCE
                                                                                                                                                 KEYWORDS
                                                                                                                                                                                        ACCESSION
                                                                                                                                                                          VERSION
                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                            AV404019
                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                   604 gtggc 608
                                                                                                                                                                                                                                                                                                                                                                                                          545 caatcatgctgctaac-gtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     125 AATTTACCCAATTTTATTCAATAAGTCAATATCATGCCGTTAATATGTTGCCATCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         485 aatttacccaattttattcaataagtcaatatcatgccgttaatatgttgccatccgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                     65 CAATCATGCTGCTAACGGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTCTTT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185 TAAGCGCCGCCTCTTTTCATCTCACTACCACAACGAGCGAATTAACCCCATCGTTGAGTCA 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425 taagogoogootottttoatotoaotaoogoagogaattaaooogatogttgagtoa 484
                                                                                                                                                                                                                                                                                                                                                 5 GTGGC 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              245 CCTGCGATGGTTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAATCGGTAG 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       365 cctgcgatggttggagttccagacgatacgtcgaagtgaccaactaggcggaatcggtag 424
                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             305 ATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTCTCTG 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    305 algoaggototaactattacotgogaactgtttogggattgcattttgcagacotototg 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             365 CÁCGATTATCGACTCAÁTGCTCTTÁCCTGTTGTGCAGATATAAAAAATCCCGAAACCGTT 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245 cacgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaaccgtt 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          425 GÓTATTCGCTTAATTCAGCÁGAACGGAAAGAGCÁCTGGCTAACCAGGCTCGCCGACTCTT 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185 ggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgactctt 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            485 Trerecterrectedececceccareaccecteraccecartrecterarecectrectec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 125 ttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgcttcc 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bombycoidea; Bombycidae; Bombyx.
  Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia
                                                                                             Bombyx mori
                                                                                                                                 AV404019 714 bp mRNA
AV404019 Bombyx mori pheromone gland Shuko x Ryuhaku newly eclosed
adult Bombyx mori cDNA clone pg--0345 T3, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65 gccgcagcgtaactattactaatgaattcaggacagtggctacggctcagtttggg 124
                                                                                                             domestic silkworm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     543;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     / Clone_lib* Tomato flower buds 3-8 mm, Cornell University*
/ Clone_Lib* Tomato flower buds 3-8 mm, Cornell University*
/ Clone_Tib* Tomato flower*
/ Clone_Tib* Tomato flower buds and flowers were immediately frozen in liquid nitrogen and then
size-separated while remaining frozen.*
a 124 c 135 g 130 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:4081"
/clone="cTOB14J1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 531.4; DB 10; Length 546; Pred No. 5.4e-152;
```

FEATURES

Email:

source

COMMENT

JOURNAL

TITLE

REFERENCE

AUTHORS

SOURCE KEYWORDS

ORGANISM

comato

DEFINITION AW624097/c

FOCUS

8

Ş DЪ δÃ

В Qγ Дb Ş DЪ

Ş Ъ γ DЪ Qy В γ B Qγ Дb

Indels

1;

us-09-740-211-13_copy_11000_11933.rst

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                δõ
                                                                                                                                                                        ρy
                                                                                                                                              В
                                                                                                                δÃ
LOCUS 743 bp mRNA EST 24-JUL-2000
BE420137 743 bp mRNA Wheat Scutellum Library Triticum aestivum DEFINITION WWS020.E9R000101 ITEC WWS Wheat Scutellum Library Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     401 tgaccaactaggcggaatcggtagtaagcgccgcctcttttcatctcactaccacaacga 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461 gcgaattaacccatcgttgagtcaaatttacccaattttattcaataagtcaatatcatg 520
                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CCGTTAATATGTTGCCATCCGTGGCAATCATGCTGCTAACGTGTGACCGCATTCAAAATG 180
                                                                                                                                                                                                                                                                                                                                                                            581 ttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcggctta 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 TGACCAACTAGGCGGAATCGGTAGTNAGCGCCGCCTCTTTTCATCTCACTACCACAACGA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                       641 acagtgogtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgcgatat 700
                                                                                                                                                                                                                                                                                                                     241 ACAGTGCGTGACCAGGTGGGTTAGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATAT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mita,K., Morimyo,M., Shimada,T., Okano,K. and Maeda,S. Bombyx mori cDNA.
                                                                                                                                                                                                                                                               301 GCTGCGCTTGCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCG 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Mita K
Genome Research Group
Research Group
Remome Research Group
National Institute of Radiological Sciences
National Institute of Radiological Sciences
Anagawa 4-9-1, Inage, Chiba 263-8555, Japan
Email: kmita@nirs.go.jp
                                                                                                                                                                                                                                761 acaactotococcacagototyttttggcaatatcaaccgcacggcotytaccatggcaa 820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (2000)
                                                                                                                                                             821 tetetgeatettgecccggcgtcgcggcactacggcaataatccgcataagcgaatgtt 880
                                                                                                                                                                                                      361 ACAACTCTCCCCCACAGCTCTGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAA 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         method:uni-directional, sequence direction:sequenced from T3 primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Future Program in JSPS'. see 'SilkBase', for whole ESTdb. <a href="http://www.ab.a.u-tokyo.ac.jp/silkbase/">http://www.ab.a.u-tokyo.ac.jp/silkbase/</a>, for whole ESTdb. Location/Qualifiers
                                                                                                                881 gcgagcacttgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                        GCGAATTAACCCATCGTTGAGTCAAATTTACCCCAATTTTATTCAATAAGTCAATATCATG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  524; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Project='Silkworm Genome Program in MAFF, and Research for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                        cogttaatatgttgccatccgtggcaatcatgctgctaacgtgttgaccgcattcaaaatg 580
                                                                                                                                                                                                                                                                                         gctgcgcttgctggcatccttgaatagccgacgcctttgcatcttccgcactctttctcg 760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  similarity
                                                                                                                                                 TCTCTGCATCTTGCCCCCGGCGTCGCGGCACTACGGCAATAATCCGCCATAAGCGAATGTT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="pg--0345"
/clone_lib="Bombyx mori pheromone gland Shuko x Ryuhaku
newly-eclosed adult"
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="pheromone gland"
/dev_stage="newly-eclosed adult"
/dev_stage="newly-eclosed bullt"
/ 200 c 158 g 195 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Bombyx mori"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="Shuko x Ryuhaku"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55.9%;
99.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 522.2; DB pred. No. 4e-149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                      δã
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 456;
                                                                                                                                                                                       밁
                                                                                                                                                                                                                               QΥ
                                                                                                                                       20
                                             Ş
                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           397 gaagtgaccaactaggcggaatcggtagtaagcgccgcctcttttcatctcactaccaca 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDNA clone WWS020.E9, mRNA sequence.
BE420137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                           121 CATGCGGTTAATATGTTGCCATCGGTGGCAATCATGCTGCTAACGTGTGACCGCATTCAA 180
                                                                                                                                                                                                                                                                                                                                                                                                   517 catgccgttaatatgttgccatccgtggcaatcatgctgctaacgtgtgtgaccgcattcaa 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S. Dubcovsky, J. Feuillet, C., Gale, M., Graner, A., Gustafson, P., S., Dubcovsky, J. Feuillet, C., Gale, M., Graner, A., Joudrier, P., S., Dubcovsky, J. Feuillet, C., Gale, M., Graner, J., Joudrier, P., Hermann, R.G., Holton, T., Jacquemin, J.M., Jia, J., Joudrier, P., Garmann, C., Schuch, W., Gchire, P., Ogihara, Y., Lazo, G. R., Lin, J.J., McGuire, P., Ogihara, Y., Fazo, G. R., Lin, J.J., McGuire, P., Ogihara, Y., Fazo, G., R., Lin, J.M., McGuire, P., Ogihara, Y., Gale, M., Graner, P., McGuire, P., Ogihara, Y., Gale, M., Graner, P., McGuire, P., Ogihara, Y., Ogihara, 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BE420137.1 GI:9417983
                                                                                                                                                                                                                                                                                 181 AATGTTGTGTGGGATTGACTCTTTTGTGGCATTGCACCAGAGCGTCATACAGCGG 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Triticum aestivum
Eukaryota; Viridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Eukaryota; Viridiplantae; Liliopsida; Poales; Poaceae; Pooldeae Spermatophyta; Magnollophyta; Liliopsida; Poales;
                                                                                                                                                                                    1 GAAGTGACCAACTAGGCGGAATCGGTAGTAAGCGCCGCCTCTTTTCATCTCACTACCACA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Anderson, O.A., Appels, R., Bailey, P., Blake, T., Close, T., Cloutier
757 ctcgacaactctcccccacagctctgttttggcaatatcaaccgcacggcctgtaccatg 816
                                                                                            301 ATATGCTGCGCTTGCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTT 360
                                                                                                                                    697 arargergegerrggearcerrgaarageegaegeerrrgearctrecgeaeterrr 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zeneca Wheat Improvement Centre, Norwich Research Park Colney Lane, Norwich NR4 7UH UNITED KINGDOM Tel: 44 1603 250 2600 Tel: 44 1603 250 699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://wheat.pw.usda.gov/genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: wolfgang.schuch@aguk.zeneca.com
International Triticeae EST Cooperative (ITEC)
                                                                                                                                                                                                                                                                                                                            aatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcgg 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Triticum aestivum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone. c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="scutellum callus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone_lib="ITEC WWS Wheat Scutellum Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:4565"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /cultivar="Novosibirskaya 67"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="\bar{1}13 Reverse sequencing primer used for 5' end of clone. "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 455.4; DB 10
Pred. No. 1.3e-128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       212 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 743;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
```

0

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                               Query Match
770 ccccacagctctgttttggcaatatcaaccgcacggcctgtaccatggcaatctctgcat 829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                     241 GCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTC 300
                                                  710 gctggcatccttgaatagccgacgcctttgcatcttccgcactcttctcgacaactctc 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                      181 GACCAGGTGGGTTGGGTAAGGTTTGGGATTAGCATCGTCACAGCGCGATATGCTGCGCTT 240
                                                                                                    650 gaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgcgctt 709
                                                                                                                                      121 ATTGACTCTTCTTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGTGCGT 180
                                                                                                                                                    590 attgactcttctttgtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgt 649
                                                                                                                                                                                                     530 tyttyccatccytygcaatcatyctyctaacytytyaccycattcaaaatyttytctycy 589
                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                       61 refreccareceregeaarcarecraacereregeacegearreaaaarerrerege 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AV403989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421 GCAATCTCTGCATCTTGCCCCCGGCGTCGCGGCACGA 457
                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Project='Silkworm Genome Program in MAFF, and Research for the <a href="http://www.ab.a.u-tokyo.ac.jp/silkbase/">http://www.ab.a.u-tokyo.ac.jp/silkbase/</a>, for whole ESTdb.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                method:uni-directional, sequence direction:sequenced from T3 primer
(5' -> 3')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome Research Group
National Institute of Radiological Sciences
Anagawa 4-9-1, Inage, Chiba 263-8555, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcaatctctgcatcttgcccccggcgtcgcggcacta 853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bombyx mori cDNA
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Mita K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ebukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bombyx mori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AV403999 Bombyx mori pheromone gland Shuko x Ryuhaku newly-eclosed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                domestic silkworm.
                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AV403989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     K., Morimyo, M., Shimada, T., Okano, K. and Maeda, S.
                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="pheromone gland"
/dev_stage="newly-eclosed adul
141 c 107 g 144 t
                                                                                                                                                                                                                                                                                                                                                                                                                   /Clone_lib="Bombyx mori pheromone gland Shuko x Ryuhaku/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /Organism="Bombyx mori"
/strain="Shuko x Ryuhaku"
/db_xref="taxon:7091"
                                                                                                                                                                                                                                                                                                              48.6%; Score 454.2; DB 10
99.3%; Pred. No. 2.5e-128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      500 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P9--0306*
                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                         DB 10;
                                                                                                                                                                                                                                                                                                                                                                                           adult"
                                                                                                                                                                                                                                                                                                                      Length 500;
    Ъ
                                                                                                              ORIGIN
                                                                                                                           BASE COUNT
                                              Matches 456;
                                                                                                                                                                                                                                                                                       FEATURES
                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 9
BF328036/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЪ
                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                     158 a
```

oy ob

В

Dy Dy

```
502 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 443
                                   1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        890 tgcagtacctttgccttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421 TGCAGTACCTTTGCCTTAGTATTTCCTTCAAGCTTTGCC 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 chigciocoggogregos de la company de la c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            830 cttgcccccggcgtcgcggcactacggcaataatccgcataagcgaatgttgcgagcact 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 CCCCACAGCTCTGTTTTGGCAATATCAACCGCACGGCCTGTACCATGGCAATCTCTGCAT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High quality sequence start: 47
High quality sequence stop: 617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: asimpson@ludwig.org.br
This sequence was derived from the FAPESP/LICR Human Cancer Genome Project. This entry can be seen in the following URL

[http://www.ludwig.org.br/scripts/gethtml2.pl?tl=QV3&t2=QV3-BN0149-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tel: +55-11-2704922
Fax: +55-11-2707001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Simpson A.J.G.
Laboratory of Cancer Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-Sp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shotgun sequencing of the human transcriptome with ORF expressed
                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note=*Grgan: breast_normal; Vector: pucl8; Site_1: SmaI; Site_2: SmaI; A mini-library was made by cloning products of the pucl structure for Cancer Research; Profiles into the pucl 18 vector. Reverse transcription of stringency conditions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Institute for Cancer Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="Adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="BN0149"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                     45.0%; Score 420.6; DB 11.
98.5%; Pred. No. 5.6e-118;
                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                     DB 11;
                                                                                                                                                                                                          Length 617;
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF634302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   382 Treestricterrictedeceseccarcaccectriacscarricgrantecesiricis 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120 ttgggttgtgctgttgctgggggggatgacgcctgtacgcatttggtgatccggftctg 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        322 CTTCCGGTATTCGCTTAATTCAGCACAACGGAAAGAGCACTGGCTAACCAGGCTCGCCGA 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180 cttccggtattcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccga 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    143 CTCTGCCTGCGATGGATTGGAGTTCCAGACGATACGTCGAAGTGACCAACTAGGCGGAAT 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360 ctctgcctgcgatgg-ttggagttccagacgatacgtcgaagtgaccaactaggcggaat 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419 cggtagtaagcgccgcctcttttcatctcactaccacaacgag 461
| 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | cogttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacct 359
                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mrna sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Medicago truncatula
Medicago truncatula
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Vore eudicots;
Eukaryota; Varidapae, mrifolieae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF634302.1 GI:11898460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Torrez Jerez, I., Scott, A.D., Harris, A.R., Gonzales, R.A., Bell, C.J., Flores, H.R., Inman, J.T., Weller, J.W. and May, G.D. Flores, H.R., Inman, J.T., Weller, J.W. and May, G.D. Expressed Sequence Tags from the Samuel Roberts Noble Foundation Expressed Sequence Tags from the Samuel Roberts Noble Foundation Medicago truncatula drought library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (2000)
Contact: May GD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plant Biology Division
The Samuel Roberts Noble Foundation
                                                                                                                                                                                                                                                                                                                                                                                                                  Insert Length: 685 Std Error: 0.4 plate: 074 row: F column: 11 seq primer: TCACACAGGAAACAGCTATGAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    580 221 7391
580 221 7380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sam Noble Parkway, Ardmore, OK 73402,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gdmay@noble.org
                                                                                                             /tissue_type="plantlets"
/tissue_type="plantlets"
/dev_stage="pooled timepoints"
/note="vector: Lambda Zap; Contains a mixture of entire
/note="vector: Lambda Zap; Contains a mixture of entire"/
/note="vector: Lambda Zap
                                                                                                                                                                                                                                                                                                                                        /organism="Medicago truncatula"
                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                            /clone="NF074F11DT"
                                                                                                                                                                                                                                                                                                           /db_xref="taxon:
                                                                                 timepoints.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Std Error: 0.00
                                                                             169 g
                                                                                    189 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 420;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BI269141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                680 G 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421 g 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11
                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BI269141.1 GI:14875595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NF003A05IR 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                             gdmay@noble.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    May GD
                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                             /clone="NF003A05IR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
```

```
260 AAACGGCAGGAGGTTGTTAGCGCGACCTCCTGCCACCCGCTTTCACGAAGGTCATGTGTA 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 tgggttgtgctgttgctgggcggcgatgacgcctgtacgcatttggtgatccggttctgc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 trccggtatrcgcttaattcagcacaacggaaagagcactggctaaccaggctcgccgac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 aaacggcaggaggttgttagcgcgacctcctgccacccgctttcacgaaggtcatgtgta 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440 Trocogratroscriaatroagcacaacggaaaggactactaggcraaccaggcrogccaac 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 tottcacgattatcgactcaatgctcttacctgttgtgcagatataaaaaatcccgaaac 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500 TCTTCACGATTATCGACTCAATGCTCTTACCTGTTGCAGATATAAAAAATCCCGAAAC 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          560 CGTTATGCAGGCTCTAACTATTACCTGCGAACTGTTTCGGGATTGCATTTTGCAGACCTC 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 cgttatgcaggctctaactattacctgcgaactgtttcgggattgcattttgcagacctc 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NF003A05IR1F1036 Irradiated Medicago truncatula cDNA clone
                                                                                                                                                                                                                                                                                                                          Medicago truncatula
Medicago truncatula
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Magnoliophyta; eudicotyledons; core eudicots;
Spermatophyta; Magnoliophyta; Fabaceae; Papilionoideae; Trifolieae;
Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                              Torres Jerez,I., Scott,A.D., Harris,A.R., Gonzales,R.A., Bell,C., Torres,H.R., Inman,J.T., Weller,J.W. and May,G.D. Flores,H.R., Inman,J.T., Weller,J.W. and May,G.D. Expressed Sequence Tags from the Samuel Roberts Noble Foundation Expressed Sequence Tags from the Samuel Roberts Noble Foundation Medicago truncatula irradiated library
                                                                                                                  The Samuel Roberts Noble Foundation 73402, USA 2510 Sam Noble Parkway, Ardmore, OK 73402, USA Tel: 580 221 7391 Fax: 580 221 7380
                                                    Insert Length: 688 Std Error: 0.0 plate: 003 row: A column: 05 plate: TCACACAGGAAACAGCTATGAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44.9%;
99.8%;
/db_xref="taxon:3880"
          /organism="Medicago truncatula"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 419.4; DB 11; Length 685; Pred. No. 1.4e-117;
                                                                                                Std Error: 0.00
                                                                                                                                                                                                                                                                                                        Gonzales, R.A., Bell, C.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                 Trifolieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

ORIGIN

```
BASE COUNT
                                                                                                                                                                                                                                                                    Matches 411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                       301 CÁTGGCAATCTCTGCATCTTGCCCCCCGGCGCTCGCGGCACTACGGCAATAATCCGCATAAG 360
                                                                                                                                                                                                                                                                                                                                        813 catggcaatctctgcatcttgcccccggcgtcgcgggactacggcaataatccgcataag 872
                                                                                                                                                                                                                                                                                                                                                                           181 GCGATATGCTTGCGCTTGCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                              694 gcgatatgc-tgcgcttgctggcatccttgaatagccgacgcctttgcatcttccgcact 752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 CGGCTTAACAGTGCGTGACCAGGTGGGTTGGGTAAGGTTTGGGATTAGCATCGTCACAGC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     634 cggcttaacagtgcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagc 693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         574 caaaatgttgtctgcgattgactcttctttgtggcattgcaccaccagagcgtcatacag 633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            515 atcatgcogttaatatgttgccatccgtggcaatcatgc-tgctaacgtgtgaccgcatt 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 CAAAATGTTGTCTGCGATTGACTCTTTGTGGCATTGCACCACCAGAGCGTCATACAG 120
                Mita,K., Morimyo,M., Shimada,T., Okano,K. and Maeda,S. Unpublished (2000)
         Genome Research Group
                                               Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Perrygota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia (bases 1 to 775)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 ATCATGCCGTTAATATGTTGCCATCCGTGGCAATCATGCGTGCTAACGTGTGACCGCATT 60
                                                                                                                                          domestic silkworm.
                                                                                                                                                                  AV404200 775 bp mRNA AV404200 Bombyx mori pheromone gland Shuko x Ryuhaku newly-eclosed
                                                                                                                                     Bombyx mori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       inote-vector: Lambda Zap: Seedlings were exposed either to 100 gy gamma or 0.5, 1, 5, or 10 kJ/m2 UV irradiation. All hours after treatment. UV-irradiated at 6, 12, 24 and polyah enriched, post-treatment. DUA was prepared from total RNA from each samples of equivalent amounts of packaged using the Gigapack III Gold packaged using the Gigapack III Gold packagen) and from the recombinant Uni-Zap X vector using Extracts. Phagenids containing cDNA inserts were in vivo excised (Stratagene). Excised plasmids were plated wing Solk (Stratagene). Excised plasmids were plated using Solk (Cells."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="seedlings"
/dev_stage="seedling"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="Irradiated"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41.5%;
98.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 387.2; DB 11; Length 688; 0; Mismatches 3; Indels 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    193 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7 others
REFERENCE
AUTHORS
                                                                                                                                                                       RESULT 1
BG312470
                                                                                SOURCE
                                                                                        KEYWORDS
                                                                                                                   ACCESSION
                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                      Дb
                                                              ORGANISM
                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                      13
```

COMMENT

REFERENCE

AUTHORS

SOURC KEYWORDS VERSION ACCESSION DEFINITION AV404200 RESULT

ORGANISM

DЬ

Ъ

ρy ₽ Qy В Qy Дb γ Д δÃ Дb

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 382; Conservative
                                                                                                                                                                                                                                                                                                                                                       361 CTTAGTATTTCCTTCAAGCTTTGCC 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                          904 cttagtatttccttcaagctgcccc 928
                                                                                                                                                                                                                                                                                                                                                                                                301 CGCGGCACTACGGCAATAATCCGCATAAGCGAATGTTGCGAGCACTTGCAGTACCTTTGC 360
                                                                                                                                                                                                                                                                                                                                                                                                                   844 cgcggcactacggcaataatccgcataagcgaatgttgcgagcacttgcagtacctttgc 903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 TŤŤĠĠĊĀĀŤĀŤĊĀĀĊĠĊĀĊĠĠĊĊŤĠŦĀĊĊĀŤĠĠĊĀĀŤĊŤĊŤĠĊĀŤĊŤŤĠĊĊĊĊĠĠĊĠŤ 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    784 tttggcaatatcaaccgcacggcctgtaccatggcaatctctgcatcttgcccccggcgt 843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 ATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAACTCTCCCCCCACAGCTCTGT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    724 atagoogacgcotttgcatcttccgcactcttctcgacaactctcccccacagctctgt 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 GGTAAGGTTTGGGATTAGCATCGTCACAGCGGGATATGCTGCGCTTGCTGGGATCCTTGA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      664 9gtaaggtttgggattagcatcgtcacagcgcgatatgctgcgcttgctggcatccttga 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         604 gtggcattgcaccaccagagcgtcatacagcggcttaacagtgcgtgaccaggtgggttg 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         544 gcaatcatgctgctaacgtgtgaccgcattcaaaatgttgtctgcgattgactcttcttt 603
Triticum aestivum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
Triticeae; Triticum.
1 (bases 1 to 373)
Akhunov,E., Anderson,O.D., Chao,S., Chin,A., Choi,D.W., Close,T.J.,
Dvorak,J., Fenton,R.D., Gustafson,P., Han,P.S., Hsia,C.C., Kang,Y.,
Kianian,P., Lazo,G.R., Miller,R., Otto,C., Nguyen H.T., Rausch,C.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 GTGGCATTGCACCACCAGAGGGTCATACAGCGGCTTAACAGTGCGTGACCAGGTGGGTTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GCAATCATGCTGCTAACGTGTGACCGCATTCAAAATGTTGTCTGCGATTGACTCTTCTTT 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                         BG312470 373 bp mRNA
WHE2408_F10_L202S Wheat 3-6 DAP seed cDNA library Triticum aestivum
                                                                                                                                                                                  bread wheat
                                                                                                                                                                                                       BG312470.1 GI:13114273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <http://www.ab.a.u-tokyo.ac.jp/silkbase/>, for whole ESTdb.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Project='Silkworm Genome Program in MAFF, and Research for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         National Institute of Radiological Sciences Anagawa 4-9-1, Inage, Chiba 263-8555, Japan Email: kmita@nirs.go.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               method:uni-directional, sequence direction:sequenced from T3 primer (5' -> 3')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="pheromone gland"
/dev_stage="newly-eclosed adul
211 c 185 g 218 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Bombyx mori"
/Strain="Shuko x Ryuhaku"
/db_xref="taxon:7091"
/clone="pg--0693"
/clone_lib="Bombyx mori pheromone gland Shuko x Ryuhaku
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40.7%; Score 380.2; DB 10 99.2%; Pred. No. 1.5e-105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _ DB_10; Length 775;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                        ρy
                                                                                                                                                                                      밁
                                                                                                                                                                                                                             Qy
                                                                                                                                 Qy
                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                           36 cccgctttcacgaaggtcatgtgtaaaaggccgcagcgtaactattactaatgaattcag 95
                                                                                           96 gacagacagtggctacggctcagtttgggttgtgctgttgctggggcggcggtgatgacgcctg 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                      241 GTGCAGATATAAAAAATCCCGAAAACCGTTATGCAGGCTCTAACTATTACCTGCGAACTGT 300
                                                                                                                                                                                                                                  276 gtgcagatataaaaaatcccgaaaccgttatgcaggctctaactattacctgcgaactgt 335
361 CGAAGTGACCAAC 373
                                                396 cgaagtgaccaac 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 CCCGCTTTCACGAAGGTCATGTGTAAAAGGCCGCAGCGTAACTATTACTAATGAATTCAG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Olin Anderson
US Department of Agriculture, Agriculture Research Service, Pacific
West Area, Western Regional Research Center
800 Buchanan Street, Albany, CA 94710, USA
Tel: 5105595773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , Seaton,C.L., Simons,K., Tong,J.C. and Zhang,D.
The structure and function of the expressed portion of the wheat
genomes - 3-6 DAP seed cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACAGACAGTGGCTACGGCTCAGTTTGGGTTGTGCTGTTGCTGGGCGGCGATGACGCCTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished (2001)
                                                                                                                                                                                                                                                                                                         gcactggctaaccaggctcgccgactcttcacgattatcgactcaatgctcttacctgtt 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence have been trimmed to remove vector sequence and low quality sequence with phred score less than 20 seq primer: Stratagene SK primer.
                                                                                                                                                                                                                                                                                     GCACTGGCTAACCAGGCTCGCCGACTCTTCACGATTATCGACTCAATGCTCTTACCTGTT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5105595818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Vector: Lambda Uni-ZAP XR, excised phagemid; /note="Vector: Lambda Uni-ZAP XR, excised phagemid; /note="Vector: Site_2: XhoI; Total RNA was prepared from Site_1: ECORI; Site_2: XhoI; Total RNA was prepared from Site_1: ECORI; Site_2: XhoI; Total RNA was prepared from these four DAPs, polyA was purified, a CDNA pooled from these four DAPs, polyA was purified, a CDNA pooled from these four DAPs, polyA was purified, a CDNA pooled from the Site PBluescript phagemids in the TJ Close lab excised to give pBluescript phagemids in the TJ Close lab excised to give pBluescript phagemids in the TJ Close lab excised to give pBluescript phagemids, in the TJ Close lab excised to give pBluescript phagemids, Zhang). (Chin at the University of California, Riverside (Akhunov, Chin plasmid DAN preparations and DNA sequencing were performed plasmid DNA preparations and DNA sequencing were performed in the OD Anderson lab (all other authors)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oandersn@pw.usda.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cultivar="Chinese Spring"
/db_xref="taxon:4565"
/clone="WHE2408_F10_L20"
/clone_lib="Wheat 3-6 DAP seed cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Triticum aestivum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="Young seed"
/dev_stage="Adult plant"
/lab_host="E. coli SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            39.9%; Score 373; DB 11; Length 373; 100.0%; Pred. No. 1.8e-103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

AA841579

```
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                         밁
                                                                                                                                  QY
                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                        216 gcactggctaaccaggctcgccgactcttcacgattatcgactcaatgctcttacctgtt 275
                                                                                                                                                                                124 GGCTGACAGTGGCTACGCTCAGTTTGGGTTGTGCTGTTGCTGGGCGGCGATGACGCCTG 183
                                                                                         184 TACGCATTTGGTGATCCGGTTCTGCTTCCGGTATTCGCTTAATTCAGCACAACGGAAAGA 243
                                                                                                                                156 tacqcatttqqtqatccqqttctqcttccqqtattcqcttaattcaqcacaacqqaaaqa 215
244 GCACTGGCTAACCAGGCTCGCCGACTCTTCACGATTATCGACTCAATGCTCTTACCTGTT 303
                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA841579 498 bp mRNA EST 02-MAR-1998
MB3D6AA9E11T3 Brugia malayi day 6 post-infection third stage larvae
SAW96MLW-BmL3d6 Brugia malayi cDNA clone 3D6AA9E11 5′, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Blaxter ML
Institute of Cell, Animouniversity of Edinburgh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and Jones, S.J. Genes expressed in day six post-infection, third stage larvae of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Blaxter, M.L., Waterfall, M., Daub, J., Lizotte-Waniewski, M., Baron, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Onchocercidae; Brugia.
1 (bases 1 to 498)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Nematoda; Chromadorea; Spirurida; Filarioidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA841579.1 GI:2922915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: mark.blaxter@ed.ac.uk
The ABI trace of this sequence can be viewed at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ashworth Labs, King's Buildings, West Mains Road, Edinburgh, EH9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      +44 131 670 5450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +44 131 650 6760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /www.sanger.ac.uk/brugia/3D6/MB3D6AA9E11T3.html
                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                       using reverse transcriptase and oligo(dT) followed by RNASe H and DNApol I. The library had 2 x 10E5 independent recombinants and average insert size was 900 base pairs. The library was constructed by Michelle Lizotte-Waniewski. The library is available from The Filarial Genome Project The library is available from The Filarial Genome Project Resource Center: contact Dr. S.A. Williams, Clark Science Resource Center, Smith College, Northampton, MA 01063 USA phone +1 Center, Smith College, Northampton, MA 01063 USA phone +1 13 585 3826 fax +1 413 585 3786 email genome@smith.edu."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="TRS Labs"
/db_xref="taxon:6279"
/clone="3D6AA9E11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="third stage larvae, six days after infection"
/lab_host="E. coli XLI-Blue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Brugia_malayi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prepared from third stage larvae of Brugia malayi isolated from the peritoneal cavity of jirds six days after infection. The mRNA was converted to double stranded cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /not="Vector: lambdaZapII (UniZap XR); Site_1: Eco R I (5' end); Site_2: Xho I (3' end); Brugia malayi is a (5' end); Site_1: Anna was lymphatic filarial nematode parasite of humans mrNa was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      larvae SAW96MLW-BmL3d6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Brugia malayi day 6 post-infection third stage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1997
                                                                                                                                                                                                                                                                                                      39.8%;
99.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Animal and Population Biology
                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                         Score 371.8; DB 10
Pred. No. 4.8e-103;
                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                      DB 10; Length 498;
                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                  Gaps
```

0;

```
ORIGIN
                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 1
AV749428
                                                                                                                                                                                        Matches 388;
                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
646 gcgtgaccaggtgggttgggtaaggtttgggattagcatcgtcacagcgcgatatgctgc 705
                                                                                                  586 tgcgattgactcttctttgtggcattgcaccaccagagcgtcatacagcggcttaacagt 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                   57 TGCGATTGACTCTTTGTGGCATTGCACCACCAGAGCGTCATACAGCGGCTTAACAGT 116
                                                                                                                                                                      y Match
Local Similarity 96.3%; Score 360; DB 10; Length 399;
Local Similarity 96.3%; Pred. No. 1.8e-99;
hes 388; Conservative 0; Mismatches 10; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484 AACGAGCGAATTAAC 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         456 aacgagcgaattaac 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           424 CGAAGTGACCAACTAGGCGGAATCGGTAGTAAGCGCCGCCTCTTTTCATCTCACTACCAC 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        396 cgaagtgaccaactaggcggaatcggtagtaagcgccgcctcttttcatctcactaccac 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chinese National Human Genome Center at Shanghai
351 Guo Shoujing Road, Zhangjiang Hi- Tech Park, Pudong.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Qinghua Zhang
Shanghai Institute of Endocrinology, Rui-Jin Hospital
197 Rui-Jin II Road, Shanghai 200025, P. R. China
Tel: 86-21-6437046 (ex.663332)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This clone is available at Shanghai Hematology Institute in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 399)

Song, H., Peng, Y., Gu, Y., Yang, Y., Gao, G., Xiao, H., Xu, X., Li, N., Qian, B., Liu, F., Qu, J., Gao, X., Cheng, Z., Xu, Z., Zeng, L., Xu, S., Gu, Hu, Y., Jia, J., Fu, G., Ren, S., Zhong, M., Lu, G., Ye, M., Zhang, Q., Han, Z., Chen, Z., Hu, R. and Chen, J.

Homo sapiens NPC library cDNA clones

Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AV749428 399 bp mRNA EST 19-OCT-2000 AV749428 NPC Homo sapiens cDNA clone NPCDBD10 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AV749428.1 GI:10907276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                         75 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mbshi@ms.stn.sh.cn
                                                                                                                                                                                                                                                                                                     /lab_host="SOLR"
/note="Yector: pBluescript sk(-); Site_1: EcoRI; Site_2:
vh^*"
                                                                                                                                                                                                                                                                                                                                               /tissue_type="pituitary"
/dev_stage="Adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. . 399
                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="NPC"
                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                    /clone="NPCDBD10"
                                                                                                                                                                                                                                                                                     113 c
                                                                                                                                                                                                                                                                                92 g
                                                                                                                                                                                                                                                                                113 t
                                                                                                                                                                                                                                                                              6 others
                                                                                                                                                                    5; Gaps
                                                                                                                                                                      2
```

QΥ DЬ ρ ₽ Qy

```
δÃ
                                                                                 DЬ
                                                                                                             QΥ
                                                                                                                                               В
                                                                                                                                                                             Qy
                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                             Qy
357 GCACTTGCAGTACCTTTGCCTTAGTATTTCCTTCGCCTTTGCCC 399
                 885 gcacttgcagtacctttgccttagtatttccttcaagctgccc 927
                                                          297 TGCATCTTGCCCCCGGCGTCGCGGCACTACGGCAATAATCCGCATAAGCNAATGTTGCNA 356
                                                                            825 tgcatcttgcccccggcgtcgcggcactacggcaataatccgcataagcgaatgttgcga 884
                                                                                                                                          766 totococoacagottotgttttggcaatatcaac-cgcacggcctgtaccatggcaatctc 824
                                                                                                                            237 TCTCCCCCACAGCTCTGTTTTGGCAATATNAACNCGNACGGCCTGTACCATGGNAATCTC 296
                                                                                                                                                                                                                                                        177 GCTTGCTGGCATCCTTGAATAGCCGACGCCTTTGCATCTTCCGCACTCTTTCTCGACAAC 236
                                                                                                                                                                                                           706 gcttgctggcatccttgaatagccgacgcctttgcatcttccgcactctttctcgacaac 765
```

Search completed: January 17, 2002, 14:58:51 Job time: 8652 sec

•			
•			
•			

$us-09-740-211-13_copy_1_1000.rge$

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                January 17, 2002, 12:34:39; Search time 5101.32 Seconds (without alignments) 3233.904 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 cagctgcgcgctcgctcgct.....agacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-740-211-13_COPY_1_1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1472140 seqs, 8248589755 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                            GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                         gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_ba:*
                                                                                                                                                                                                                                                                                                                                                                    gb_pat:*
                                                                                                                                                                                                                                                                                                                                                                                    gb_ov:*
                                                                                                                                                                                                                                  em_fun:*
em_hum:*
                                                                                                                                                          em_pat:*
em_ph:*
                                                                                                                                                                                   em_om: *
em_or: *
em_ov: *
                                                                                                                                                                                                                                                                                                          gb_sts:*
em_htgo_hum: *
em_htgo_inv: *
em_htgo_rod: *
em_htg_hum: *
em_htg_inv: *
em_htg_rod: *
em_htg_rod: *
                                                                                                                                                                                                                                                                                 gb_un:*
                                                                                                                                                                                                                                                                                                 gb_sy:*
                                                                                                                                                                                                                                                                                                                      gb_ro:*
                                                                                                                                                                                                                                                             em_ba:*
                                                                                                                                                                                                                       em_in:*
                                                                                                                                             em_pl:*
                                                                                                                        em_sts:*
                                                                                                                                   em_ro:*
                                                                                               em_un:*
                                                                                                         em_sy:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2944280
```

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL FEATURES SOURCE BASE COUNT ORIGIN		Result Score No. 1000 1000 1000 1000 1000 1000 1000 10
7.1 GI:14480722	ALIGNMENTS AR138377 11933 bp DNA Sequence 13 from patent US 6200560. AR138377	Ouery Match Length DB ID Match Length DB ID Match Length DB ID Match Length DB ID Ouery Match Length DB ID Ouery May Annual Say An
expression of factor VIII by ;	PAT 16-JUN-2001	AR138377 Sequence AR138378 Sequence AR1346887 Sequence AR1346888 Sequence AR0334084 Sequence AR073306 Sequence AR073306 Sequence AR073306 Sequence AR073306 Sequence AR073306 Sequence AR073306 Sequence I71409 Sequence I71409 Sequence I71409 Sequence I71409 Sequence AR126884 Sequence AR126884 Sequence I31901 Sequence I31901 Sequence I31901 Sequence I31901 Sequence I31901 Sequence I108345 Sequence I108345 Sequence I108457 Sequence I08643 Sequence I08643 Sequence I08643 Sequence I08643 Sequence I08643 Sequence I08641 Sequence I08641 Sequence I71060 Sequence I71060 Sequence I71060 Sequence I71061 Sequence I710641 Sequence I710647 Sequence I710647 Sequence I710647 Sequence I710647 Sequence I710573 Must domesti AF016347 Sequence AR029067 Sequence AR029067 Sequence AR029067 Sequence AR126886 Sequence AR126917 Sus scrofe AR029097 Sequence AR126917 Sequence

```
В
                                                                                                                                                                                                                                   Ŷ
                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                 γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
           961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                      901 gtcctgaaaggaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                     841 caaagggagaaagaagatgataaagtcttocctggtggaagccatacatatgtctggcag 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match

100.0%; Score 1000; DB 6; Length 11933;

Best Local Similarity 100.0%; Pred. No. 1e-293;

Matches 1000; Conservative 0; Mismatches 0; Indels 0;
                                                                                        721 GTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCAT 780
                                                                                                                                                                                                  661 AACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAG 720
                                                                                                                                                                                                                                                 661 aacatogctaagccaaggocaccotggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                  601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                    481 AGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGT 540
                                                                                                                                                                                                                                                                                                                                                                                                     481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                               421 tocaccatgcaaatagagctotocacctgcttotttotgtgccttttgcgattotgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421 TCCACCATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTTGCGATTCTGCTTT 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 AAAGAAGTATTAGAGCGAGTCTTTCTGCACACAGATCACCTTTCCGGGGTGCCGCCCCT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 TTGTTGTTAAATACCATCCAGGGAATGTTTGTTGTTTAAATACCATCTACAGTTATTTGGTT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 1000
                                          GTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTT 960
                                                                                                                                                                                                                                                                                      TTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTC 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 tttggtcgcccggcctcagtgagcgagcgagcgcgcgcagagaggggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 cagctgcgcgctcgctcactgaggccgcccgggcaaagcccggggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 CAGETGEGETEGETEGETEACTGAGGECGGECGGGEAAAGCCCGGGCGTCGGGCGACC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTGGTCGCCCGGCCTCAGTGAGCGAGCGAGCGCAGAGAGGGAGTGGCCAACTCCATC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

DЪ Qy Дb QΥ В Qy

Qy	DЬ	Qy	Db	Qy :	B 5	Db Ov	Qy	Db	VQ Qq	Ş 5	Db	Qy	Db	Qy	dd	ν _Q	Z 2	Db	Qy		BA OR	H H		Z.	<u>ن</u>	~ < > U t	⊤ >> ≈1
661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 7	o o	601 ttcaacacctcagtcgtqtacaaaaaaaac+c+c+c+c+c+c+c+c+c+c+c+c+c+c	541 GATCTCGGTGAGCTGCCTGTGGAGGCGAAGATTTCCTCTAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAGTTCCTAAAAAGTTCCTAAAAAAAA	541 qatctcggtgaggctaggctaggggggggggggggggggg	481 ACTOCCACCAGGAGGATACTACCTGGGTGCAGTGGGACTGTCATGGGACTATATGCC	421 TCCACC	421 tocaccatgcaaatagagctotccacctgctfctftctataccett	36	301 AGGCAGGTAAGTGCCGTGGTGTGGGGTTCCCGCGGGGCCTCTTTACGGGTTATGGCCCCT	301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccc	24	241 aaagaagtatattagagcgagtctttctgcacacacacac	181 TTG	181 ttgttcttaaataccatccaqqqaatqfffqftcttcttaaaTACCATCCAGGGAAT	12	ol TTTGGTCGCCCGGCCTCAGTGAGCGAGCGAGGAGGAGAGAGGGAGTGGCCAACTCCAT	61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccat	1 -	l cagctgogottogottogottogottogottogottogot	100.0%;	ASE COUNT 3258 RIGIN	EATURES Location/Qualifiers source 111933	Adeno-a	Unclassified. EFERENCE 1 (bases 1 to 11933) AUTHORS Couto.I. B Color 5	CE Unknown. GANISM Unknown.	DEFINITION Sequence 13 from patent US 6221349. PAT 08-AUG- ACCESSION AR146887 1 GI:15110690	ULT 2 46887
	9 6	00	00	0	0	80	20	20	60	60	00	240	240	180	180	2	120	60	aps 0				tarqet			2001	

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
AR138378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                         δÃ
                                                                                                                                                                                   В
                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                    20
                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                  20
                   20
                                            а
                                                                                                                                                                                                                                                                          Matches 859; Conservative
                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721 GTTTATGATACAGTGATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCAT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcattctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         901 GTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTT 960
                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                            121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            w
                                                                                                                                                                                                                                13 cAGCTGCGCGCTCGCTCGCTCACTGAGGCCGCCCGGGCAAAGCCCGGGCGGTCGGGCGACC 72
                                                                                                                                                                                                                                                                                           Local Similarity
                                                                  241 aaagaagtatattagagogagtotttotgoacacagatoacotttoogggtgoogoooct 300
                                                                                            186
                                                                                                                                                                                               61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                            1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                    301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                             243 GCAGTAGTCGCCGTGAACGTTCTTTTTCGCAACGGGTT------TGCCGCCCCG 290
291 CGGCAGGTAAGTGCCAGGGAATGTTTGTTTAAATACCATCGCTCCAGGGAATGTTTGT 350
                                                                                                                                                                                     sequence 14 from patent US 6200560.
AR138378
                                                                                           GATGTCGTGTACTGGCTCC---GCCTTTTTCCCGAGGGTGGGGGAGAACCGTATATAAGT 242
                                                                                                               ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                       ACTAGGGGTTCCTGCGGCGCGCGCGCGTGGTGGCGCGGGTAAA-----CTGGGAAAGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases 1 to 4999)
Couto,L.B., Colosi,P.C. and Qian,X.
Adeno-associated virus vectors for expression of factor VIII by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR138378.1 GI:14480723
                                                                                                                                                                                                                                                                                                                                                                                               Patent: US 6200560-A 14 13-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                            target cells
                                                                                                                                                                                                                                                                                                                                                       /organism="unknown"
1151 c 1155 g
                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4999 bp
                                                                                                                                                                                                                                                                                                                                                                               .4999
                                                                                                                                                                                                                                                                                               72.5%;
85.9%;
                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                    Score 725.2; DB b;
pred. No. 6.7e-210;
                                                                                                                                                                                                                                                                                                                 DB 6;
                                                                                                                                                                                                                                                                                           118; Indels
                                                                                                                                                                                                                                                                                                                  Length 4999;
                                                                                                                                                                                                                                                                                                 23;
                                                                                                                                                                                                                                                                                                 Gaps
```

망

QΥ

```
QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                             RESULT
AR146888
                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                               SOURCE
                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                     VERSION
                                                                                                               FEATURES
                                                                       ORIGIN
                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421 tocaccatgcaaatagagctctccacctgcttctttctgtgcottttgcgattctgcttt 480
                                                                                                                                                                                      ORGANISM
                                                                                                                           JOURNAL
                                                                                                                                              TITLE
                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              410 recaceargeanarhadagererechéereerrerrergegeerringegarrergerri 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470 AGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGT 529
                   Matches 859;
                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             650 AACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAG 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       710 GTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCAT 769
                                                                                                                                                                                                                                                                                                                                                                                     770 GCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGT 829
                                                                                                                                                                                                                                                                                                                                                                                                                                        781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                     890 Greenganadagaantegreenaregeerrengaceencreregeerraceracreararett 949
                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                Sequence 14 from patent US 6221349. AR146888
                                                                                                                                                        1 (bases 1 to 4999)
Couto,L.B., Colosi,P.C. and Qian,X.
                                                                                                                                                                                                                      AR146888.1 GI:15110691
                                                                                                                                                                                                                                                     AR146888
                                                                                                                                               Adeno-associated vectors for expression of factor VIII by
                                                                                                                                                                              Unclassified.
                                                                                                                                                                                         Unknown
                                                                                                                                                                                                   Unknown.
                                                                                                                            Patent: US 6221349-A 14 24-APR-2001;
                                                                                      1375
                         Conservative
                                                                                        organism="unknown"
1151 c 1155 g
                                                                                                                    Location/Qualifiers
                                                                                                             .4999
                                                                                                                                                                                                                                                         4999 bp
                                   72.5%; Score 725.2; DB 6; 85.9%; Pred. No. 6.7e-210;
                            Mismatches 118;
                                                                                            1318 t
                                                     Length 4999;
                                    Indels
                                                                                                                                                                                                                                                                    08-AUG-2001
                                      23;
                                       Gaps
```

```
DEFINITION
                                                 AR034084
           ACCESSION
                                                                RESULT
                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                          Ъ
                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                      950 TCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 989
                                                                                                   961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                               901 gtcctgaaaggagaatggtccaatggcctctgacccactgtgccttacctactcatactct 960
                                                                                                                                  890 GTCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTCATATCTT
                                                                                                                                                                                     770 GCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGT 829
                                                                                                                                                                                                                                                           781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                              661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                  650 AACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAG 709
                                                                                                                                                                                                                                                                                                                                                                                                      590 TTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTC 649
                                                                                                                                                                                                                                                                                                                                                                                                                   601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                         530 GATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAAATCTTTTCCA 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             470 AGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGT 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                410 TCCACCATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCCTTTTGCGATTCTGCTTT 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421 tocaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351 TCTTAAATACCATCTACTGACACTGACATCCACTTTTTTCTTTTTTTCTCCACAGGTATCGA- 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 tgcgtgccttgaaattactgacactgacattccactttttcttttctcccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          291 CGGCAGGTAAGTGCCAGGGAATGTTTGTTCTTAAATACCATCGCTCCAGGGAATGTTTGT 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              243 GCAGTAGTCGCCGTGAACGTTCTTTTCGCAACGGGTT-----TGCCGCCCCG 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186 GATGTCGTGTACTGGCTCC---GCCTTTTTCCCCGAGGGTGGGGGAGAACCGTATATAAGT 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133 ACTAGGGGTTGCTGCGGCGCACGCGTGGTGGCGCGGGGTAAA------CTGGGAAAGT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
Sequence 1 from patent US AR034084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 tttggtcgcccggcctcagtgagcgagcgagcgcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR034084
                           5035 bp
             5869292
                     PAT
              29-SEP-1999
                                                                                                                                    949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72
```

В

REFERENCE

AUTHORS

Voorberg, J. J

(bases 1 to 5035)

DЪ δÃ В δÃ DЪ δõ

```
SOURCE
                                        KEYWORDS
                                                                               DEFINITION
                                                         VERSION
                                                                     ACCESSION
                                                                                                Locus
                                                                                                        AR071306
                                                                                                                        RESULT
                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                VΩ
                                                                                                                                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                                                                                                                                                                                  ρ
               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                              DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                           962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                              570 CTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 608
                                                                                                                                                                                            510 TCCTGAAAGAATGGTCCAATGGCCTCTGACCCACTGTGCCCTTACCCTACTCATATCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                         902 teetgaaagagaatggteeaatggeetetgaeeeaetgtgeettaeetaeteatatettt 961
                                                                                                                                                                                                                                                           390 CTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTC
                                                                                                                                                                                                                                                                                                               782 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                   330 TTTATGATAGAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATG 389
                                                                                                                                                                                                                                                                                                                                                                 722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                                                                                                                                                                                                                                                                                                                                                                                     662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg
                                                                                                                                                                                                                                                                                                                                                                                                        270 ACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 TCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422 ccaccatgcaaatagagctctccacctgcttcttctgtgcctttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90 GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30 CCACCATGGAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTA 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
Unclassified
              Unknown
                        Unknown.
                                            AR071306.1 GI:7222194
                                                      Sequence 1 from patent US 5910481.
AR071306
                                                                                         AR071306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hybrid proteins with modified activity Patent: US 5869292-A 1 09-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Voorberg, J.J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AR034084.1 GI:5949689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1484 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 5035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism~"unknown"
1127 c 1110 g
                                                                                    5035 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
1. .5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57.7%; Score 577.4; DB 6; Length 5035; 99.8%; Pred. No. 8.8e-165; ative 0; Mismatches 1; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                               PAT
                                                                         18-FEB-2000
```

0

σ

Дb

멍 γ

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local
                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                         gg
                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                   20
                                                                                                                                                            DEFINITION
                                                                                                                                                                                    AR112722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                               KEYWORDS
                                                                                                                                          VERSION
                                                                                                                                                       ACCESSION
                                                                                    REFERENCE
ORIGIN
        BASE COUNT
                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422 ccaccatgcaaatagagctctccacctgcttcttcttctgtgccttttgcgattctgcttta 481
                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30 CCACCATGGAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTA 89
                                                                 TITLE
                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       150 ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCAT 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210 TCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90 GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                         842 aaagggagaaagaagatgataaagtottcoctggtggaagccatacatatgtotggcagg 901
                                                                                                                                                                                                                                                                         962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                               570 CTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 608
                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atotoggtgagotgootgtgggaogcaagatttootootagagtgccaaaatottttocat 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                               acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGG 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hybrid proteins with modified activity Patent: US 5910481-A 1 08-JUN-1999; Patent: Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                       ARI12722 5035 bp Dt
Sequence 1 from patent US
ARI12722
                                    Hybrid proteins with modified activity Hybrid proteins with modified activity patent: US 6130203-A 1 10-OCT-2000; patent: US 6130203-A 1 1.5035
                                                                                                               Unknown
                                                                                                                                             AR112722.1
                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                            Voorberg,J.J
                                                                                                  Unclassified
                                                                                       (bases 1 to 5035)
               1484 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="unknown"
1127 c 1110 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        57.7%;
99.8%;
                /organism="unknown"
1127 c 1110 g
                                                                                                                                                 GI:14092622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 577.4; DB 6; Length 5035; pred. No. 8.8e-165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1314 t
                                                                                                                                                                          6130203.
                        1314 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                              A05328
                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                 REFERENCE
                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422 ccaccatgcaaatagagctotccacctgcttctttctgtgccctttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                                                            JOURNAL
                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150 ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCAT 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30 CCACCATGGAAATAGAGCTCTCCACCTGCTTTTCTGTGCCTTTTGCGATTCTGCTTTA 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90 GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 270 ACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTACGTCCTACCATCCAGGCTGAGG 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              662 acatogotaagocaaggocacootggatgggtotgctaggtoctaccatocaggotgagg 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                              842 aaagggagaaagaagatgataaagtottocotggtggaagcoatacatatgtotggoagg 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  390 CTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              782 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                 962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                570 CTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 608
                                                                                              CDS
                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                             synthetic Factor VIII cDNA insert of pCLB89 _{\rm A05328}
                                                                                                                                                                                                           synthetic construct
                                                                                                                                                                                                                         synthetic construct.
                                                                                                                                                                                                                                                  A05328.1 GI:345061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                     artificial sequence.
1 (bases 1 to 8241)
                                                                                                                                                            Patent: WO 8809813-A 7 15-DEC-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57.7%;
99.8%;
/translation="MQIELSTCFFLCLLRECFSATRRYYLGAVELSWDYMOSDLGELP
/translation="MQIELSTCFFLCLLRECFSATRRYYLGAVELSWDYMOSDLGELP
VDARFPPRVPKSFPPNTSVVYKKTLFVEFTDHLFNLAKPRPPMMGLLGPTIQAEVYDT
VDARFPPRVPKSFPPNTSVVYKKTLFVEFTDHLFNLAKPRPMGSHTYVMQVL
VVITLKNMASHPVSLHAVGVSYMKASEGAEYDDQTSQREKEDDKVFPGGSHTYVMQVL
                                    /transl_table=11
/product="Factor VIII"
/protein_id="CAR000448.1"
/db_xref="GI:345062"
                                                                                                                /db_xref="taxon:32630"
                                                                                                                           /organism="synthetic
                                                                                                                                                    Location/Qualifiers
                                                                                     /codon_start=1
                                                                                                                                           .8241
                                                                                                       7062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 577.4; DB 6; Length 5035; Pred. No. 8.8e-165;
                                                                                                                                   construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

2625 a SYEDISAYLLSKINAIEPRSFOONSHEPSTROKOENATUPENDIEKKNOMYALLAVSSULKNUGUYYEU
PKTONVSSSDLLMLLROSPPHGLSLSDLOEAKYETFSDDPSPGALDSNUSLSEMTHE
RPOLHHSCDMYETPESGLOLRILNEKGTTAATELKKLDEKVSSTSUKLISTIPSDILA
AGTDNTSSLGEPSHAPHYBOLDTTLFGKKSSPLTESGGPLSISEENNDSKILESGIM
AGTDNTSSLGEPSHAPHYBOLDTTLFGKKSSPLTESGGPLSISEENNDSKILESGIM
KTHIDGPSLLIENSEYMONILESDTEPKYPDILDRALAFKYSISLKKUKTSNUSAINR
SKNMENVOOKKEEPIPPAONNDMSFFKMLFLDESARWIGTTAKRLSNAGANR
SKNMENVOOKKEEPIPPAONNDMSFFKMLFLDESARWIGTTHGKNSLASGGPSPK
NTHNOEKKYGDELEKKETLJOENVYLKGESFTKVOTLKEMYPPSSRNLETINLDNLHEN
SOUNFYTORSKRALKOFFLSEKNVVVGKGESFTKVOTLKEMYPPSSRNLETINLDNLHEN
YAPVLODFRSINDSTNRTKKHPAHFSKKGEBENLEGLGNOTOLYEKYACTTRISPNT
KEKAJTISSPLSOCLTRSHS I POANRSPLDIKAVSSFPSKMKHITETTTUTOLDNLHEN
YAPVLODFRSINDSTNRTKKHPAHFSKGEBENLEGLGNOTOLYEKYACTTRISPNT
KEKAJTISSPLSOCLTRSHS I POANRSPLDIKAVSSFPSKMKHITESTLTOLDVNE
ENTVLPKROGVOESSHFLOGAKKNILSLALTLEKTGDOREVGSLGTSATNSYTYKKV
KWNEANREGKVPELTRVHTESSAKTEKILDPLAWDNHYCTOLFREEMKSOEKSPEKTA
FKKKDTILSLNACESNHAIAALNEGONEPELEVMAGGSFGHLDLVEGSLGGTSATNSYTYKKV
KWNEANREGKVPELERVATESSAKTPSKILDPLAWDNHYCTOLFREEMKSOEKSPEKTA
FTRTTIASNDERTINDTOTTGVFMKKENDENTVNFNFNAGGSFGHLDLVEGSLGGRSPEKTA
TTRTTIASNDERTINDTOTTGVFMKKENDENTVNFNFNAGGSFGHLDLVEGSLGGRSPEKTA
TTRTTIASNDERTINDTOTTGVFMKKENDENTVNFNFNAGGSFGHLDLVEGSLGGRSPEKTA NSCSMPLGMESKAISDAOITASSYFTNMFATWSPSKARLHLÖGRSNAWRPOVNNPKEW LQVDFOKTMKVTGYTTOGVKSLLTSMYVKEFLISSSODGHOWTLFFONGKVKVFQGNO DSFTPVNSLDPPLLTRYLRIHPOSWVHQIALRMEVLGCEAODLY" 1759 c 1703 g 2154 t VECLIGEHLIAGMSTLFLYYSNKCQTPLGMASGHIRDFQITASGQYGQWAPKLARLHY SGSINAWSTKEPFSWIKVDLLAPWIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMEWNGCDL IFDETKSWYFTENMERNCRAPCNIQMEDPTFKENYRFHAINGYIMDTLPGLVMAQDQR IRWYLLSMGSNENIHSIHFSGHVETVRKKEEYKMALYNLYPGVFETVEMLPSKAGIWR ITRTTLOSDOEEIDYDDTISVEMKKEDDDIYDEDENQSPRSFQKKTRHYFIAAVERLM DYGMSSSPHYLRNRAQSGSVPQFKKVVFQEFTDGSFTQPLYRGELNEHLGLLGPYIRA EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFMKVQHHM APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT TGPLLICYKESVDQRGNQIMSDKRNVILFSVFDENNSWYLTENIQRFLPNRAGYQLED PEFQASNIMHSINGYVFDSLQLSVCLHEVAYWYILSIGAQTDFLSVFFSGYTFKHKMV YEDTLTLFFPSGETVFMSMENPGLWILGCHNSDFRNRGMTALLKVSSCDKNTGDYYED KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF AVFDBGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV IGMGTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFTLLFCHISSH QHDGMEAYVKVDSCPEEPQLRMKNNEEAEDYDDLTDSEMDVVRFDDDNNSPSFIQIRG TDETFKTREAIOHESGILGPLLYGEVGDTLLIIFKNOASRDYNIYPHGITDVRPLYSR RLPKGVKHLKDFPILPGEIFKYKWTVTVEDGPTKSDPRCLTRYYSSFVMMERDLASGL VAKKHPKTWVHYIAAEEEDWDYAPLVLAPDDRSYKSQYLNNGPQRIGRKYKKVRFNAY

```
B
                                                                                                                                                                                     Qy
                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                               DЪ
                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
366 TGGTGTATCCTACTGGAAAGCTTCTGAGGGGAGCTGAATATGATGATGATCAGACCAGTCAAAG 425
                786 tggtgtatcctactgggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                         306 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGT 365
                                                                           726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                     246 GGCTAAGGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 305
                                                                                                                                       666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                 186 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT 245
                                                                                                                                                                                                  606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                            126 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 185
                                                                                                                                                                                                                                                           546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                             486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                 426 catgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                        66 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 125
                                                                                                                                                                                                                                                                                                                                                                   6 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCCTTTTGCGATTCTGCCTTTAGTGC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                  57.5%; Score 575; DB 6; Le 100.0%; Pred. No. 5.1e-164;
                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 8241;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
```

DЪ γQ В δÃ

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
A07042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         546 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     486 GAAAGAGAATGGTCCAATGGCCTCTGACCCCACTGTGCCTTACCTACTCATATCTTTCTCA 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Van Ooyen, A.J.J., Andreoli, P.M., Van Mourik, J.A. and Pannekoek, H. Method for the preparation of proteins with factor VIII activity by Patent: EP 0253455-A 23 20-JAN-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             artificial sequence.
1 (bases 1 to 8241)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A07042.1 GI:412967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Artificial mRNA for factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AVEDECKSMHESETKNILMODRDAASARAWERMHTYNGY VERSTENNILST LILE
AVEDECKSMHESETKNILMODRDAASARAWERMHTYNGY VERSTENDINGCHRKSYVMHV
IGMGTTPEVHSIFLECHTFLYRNIRADSLEISTIFLTAOTLLADLGOFLLFCHISSH
VAKKHERYKVLSCEBEPOLRMKNNEEAEDY DDOLTDSEMDVVERDDDNSPSTOIRS
TDETFKTREAIOHESGILGPLLYGEGVGDTLLIFKNOASEPVNIY PHGITDUNSPSTOIRS
TDETFKTREAIOHESGILGPLLYGEGVGDTLLIFKNOASEPVNIY PHGITDURPLYSR
RLPKGYKHLKDEPLLYGEGIFKYKWTYTVEDGPTKSDPRCLTTRYSSYVMMEBDLASGL
PEFCASNLMHS INGYVEDSLOLSVCLHBVAYWYILSIGAOTDFLSVFFSGYTEKHKWY
SYEDISAYLLKKNANAIEPRSFSONSHPSTROKOFNATTIPENDISTKHKWY
SYEDISAYLLKKNANAIEPRSFSONSHPSTROKOFNATTIPENDIERTDWFAHRTPM
RFOLHHSGDMVETPESGLOLTHLIEKLGCHNSDFRNGMTALLKVSSCDKNTGDYYED
RFOLHSGDMVETPESGLOLTHLIEKKLGTATELKKLDEKVSSTSUNLISTIPSDNLA
NASOESSWCKNYSSTESGRLEKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSALTUR
KTHTDGPSGLITENSPSTWONTIFERKKUTTAATELKKLDEKVSSTSUNLISTIPSDNLA
NASOESSWCKNYSSTESGRLEKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSALTUR
KTHTDGPSGLITENSPSTWONTIFERKUTTAATELKKLDEKVSSTSUNLISTIPSDNLA
NASOESSWCKNYSSTESGRLEKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSALTUR
KTHTDGPSGLITENSPSTWONTIFERKUTTAATELKKLOTKSSTSUNLASTIPSDNLA
NASOESSWCKNYSSTESGRLEKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSALTUR
KTHTDGPSGLITENSPSTWONTIFERKUTTAATELKUTTAATELKTSNNSALTUR
KTHTDGPSGLITENSPSTWONTIFERKUTTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONTAATELKTONT
                                                             ENTYLPKEDLPKTSGKVELLPKVITYQKDLFPTTTSNGSPGHLDLVEGSLLQGTEGAI
KWAEANROGKVPFLRVATESSAKTPSKLLDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
FKKKDTILSLNACESNHAIAAINEGONKPEIEVTWAKGGTERLCSQNPPVLKRHQRE
TTTTLGSDGEEIDVDTISVEMKKEDEDIYDEBROSPRSFQKKTRHYFIAAVERLW
DYGMSSSPHVLRNRAQSGSVPOFKKVVFQEFTDGSFTQPLYRGELNBHLGLLGPYIRA
                                                                                                                                                                                                                                                                          KTHIDGPSLLIENSFSVWONILESDTEFKKYTPLIHDRALMENATALRUMISNKTT
SKNWEMVOOKKEGPIPDAONPDMSFFRMLELPESARWIDGTHGKNSLNSGOGPSPK
OLVSLIGBEKSVBEONFLSEKNKVVVGKGEFTKOVGLKEMVFPSSRNLELTNLDNLIEN
VTHNOEKKQEELEKKETLIOENVYLPOIHTVTGTKNFMKLIELLSTRONVEGSYDGA
KAPVLODFRSLNJSTNRTKKHTAHFSKKGEEENLEGLGNOTKOJVEKYACTTRISPNT
SOONFYTGRSKRALKOFRLPLEETELEKRIIVDDTSTOWSKNMKHLTPSTLTQIDVR
KEKGAITOSPLSDCLTRSKSIPONMESPLPJAKVSSFPSIRPIYLTRVLFODNSSHLP
KEKGAITOSPLSDCLTRSKSIPONMESPLPJAKVSSFPSIRPIYLTRVLFODNSSHLP
                                  EVEDNIMVTFRNQASRPYSFYSSLISYEEDQROGAEPRKNFVKPNETKTYFWKVQHHM
{	t APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT}
                                                                                                                                                                                                                                           AASYRKKDSGVQESSHFLQGAKKNNLSLAILTLEMTGDQREVGSLGTSATNSVTYKKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TEARS LA LIOR= "NOI ELSTCEPLCILLRECESATRRYYLGAVELSWDYNGSDLGELP VOARFPERVPRSEPENTSVYYKKTLEVEETDHLENIAKPRPPMGLLGPTIQAEVYDT VITLIKNASHPVSLHAVCVSYNKASEGAEVDDQTSGREKEDDKVEPGGSHTVWGVLL KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCRESSLAKKTOTLHKFILLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="CAA00607.1"
/db_xref="GI:412968"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="factor VIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:32630"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .8241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8241 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24-AUG-1993
```

ORIGIN BASE COUNT

BASE COUNT ORIGIN

Query Match

y Match Local Similarity 100.0%; Pred. No. 5.1e-164; hes 575; Conservative 0; Mismatches 0:

Length 8241; Indels 0;

Matches 575;

γo

δÃ 멍

546

В γ р

δõ

QΥ 밁

20 망

Q g

밁

426

밁 8

QY

966 tgtggacctggtaaaagacttgaattcaggcctca 1000

TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 580

DEFINITION ACCESSION KEYWORDS

Complete cDNA encoding human factor VIII. E00527

E00527.1 GI:2168806

JP 1985243023-A/2.

REFERENCE

JOURNAL AUTHORS ORGANISM

```
426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattcttgcttttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTTGCGATTCTGCTTTTAGTGC 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 366 TGGTGTATCCTACTGGAAAGCTTCTGAGGGGAGCTGAATATGATGATCAGACCAGTCAAAG 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                486 GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGT 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgatacagtdgtcattacacttaagaacatdgcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 8831)
1 (bases 1 to 8831)
2 (bas
                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IFDETKSWYFTENMERNCRAPCNIOMEDPTFKENYRFHAINGYIMDTLPGLVMAODOR
I RWYLLSWGSNENIHSIHFSGHVFTVEKKEEYKMALYNLYPGVFETVEMLPSKAGIWR
I RWYLLSWGSNENIHSIHFSGHVFTVEKKEEYKMALYNLYPGOYFGOYGQMAPKLARLHY
VECLIGEHLHAGMSTLEILYYSNKOQTPLGMASGHIRDFOJTASGOYGQMAPKLARLHY
GSIINAWSTKEPFSWIKVDLAPMIHGIKTGCAROKFSLYISOFITMYSLDGKKWO
SGSIINAWSTKEPFSWIKVDLAPMIHGIKTGCAROKFSLYISOFITMYSLDGKKWO
TYRGMSTGTLMVFFGONVDSSGIKHUITMPPILJRYIRJHFTHYSIRSTLMEMMGCDL
TYRGMSTGTLMVFFGONVDSSGIKHUITMPPILJRYIRJHFTHYSIRSHAMRFOVNNEXEW
NSCSMPLGMESKAISDAOJTFASSYFTNMFATWSPSKABLHLOGRSNAWRFOVNNEXEW
NSCSMPLGMESKAISDAOJTFASSYFTNMFATWSPSKABLHLOGRSNAWRFOVNNEXEW
DSFTPVVNSLDPPLLTRYLRIHDGSWYHGIALRMEVLGCEAQDLY"
DSFTPVVNSLDPPLLTRYLRIHDGSWYHGIALRMEVLGCEAQDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                     29
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGC 168
                                                                                                                                                                                                                                                                                                                                                                                                           229 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAAATCTTTTCCATTCAA 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                  666 cyctaayccaayyccaccctygatygytctyctayytcctaccatccayyctyayyttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          409 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGT 468
                                                                                                                                                                                                                                                                                   726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                               786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                 469 TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mat_peptide
                                                                                                                                                                                                                                                                                                                                CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-1985 JP 1985085295
20-APR-1984 US 84 6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
JP 1985243023-A/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DANIERU JIEFURII KEIPON, RICHIYAADO MAAKU ROON, PI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UIRIAMU AAUIN UTSUDO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BIIHAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-DEC-1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                strandedness: Single;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C12N15/00//C12P21/00,(C12N5/00,C12R1:91);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A61K37/04, A61K35/12, A61K35/74, C07H21/04, C07K13/00, C07K15/04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2807 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         topology: Linear;
hypothetical: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *source: chromosome/segment=X-chromosome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         anti-sense: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1865 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57.5%; Score 575; DB 6; L
100.0%; Pred. No. 5.2e-164;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _line=CH-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product='factor VIII signal peptide' FT 7262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product='factor VIII'
7266. .<8967
8948. .8953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product='factor VIII'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1800 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .7265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 8831;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GOODON
```

0

DЪ δÃ

0,:

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AX052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sig_peptide
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  649 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     589 GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTTACTCATATCTTTCTCA 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saenko,E.L. and Strickland,D.K. Methods of reducing factor viii clearance and compositions therefor Patent: WO 0071714-A 1 30-NOV-2000;
The American National Red Cross (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AX052730.1 GI:12226920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1 from Patent W00071714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AX052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHOLIC TO YABLE LIGHTLE LIV KURINQASLELISE LITE LIANUI LLAMULGUELLECH LISSH OLDREARDY ADDICANTON TO HIGH ELECH LISSH VARKKHEKTWHY LAAREELMPV ARD VARKHEKTWHY LAAREELMPV ARD VARHADDRIS YK SQYLLAMIGPOR I GRKY KKVREMAY TOET FKTRAT QHESGI LGPLLY GEVGDTLLI I FK NQASRPYNI YEHGI TIDVRPLY SR RLPKOYKHLIGDF I LDGELFKY KRYVTYDEDGPFK SDPRCLTRY SSFYNMERDLASGL YEDLLICY KESYDDROUGH AND THE SURDERLY TENDI TORLE PUR AGVOLED YEDLI CYCES YOUNG AND THE SOL OF THE SURDERLASGL YEDTLI THE PESGETY FMSHENDOLL I LCCHNSDFRINGSMITTEND YEDLY FSGYTFKHKMY SYEDI SAYLLSKNINAI EFRESSONSHIR STROKGFNATTI FENDLEKTDEVFED FOLOWS SSDLLMLEGOBYTPHGLSLSDELTROKGFNATTI FENDLEKTDEVFFAHRTPM AGTDNTSSLGPSMPHTHOLDTILEGKKSSPLTESGOPSGALDSKILLSTIPSDULA AGTDNTSSLGPSMPHTHOLDTILFGKKSSPLTESGOPSGALDSKILLSTIPSDULA KTHKTSNINSKLLESGLM KTHTOLDSTILLTENDESCHANTSCHARFONT FROM THOLDSTIPSDULA KTHKTSNINSKLLESGLM KTHTOLDSTILLTENDESCHANTER KHAPPH AGTDNTSSLGPSMPHTHOLDSTILLTENDESCHANTSCHARFONT FROM THOLDSTILLTENDESCHANT FROM THOLDSTILLTENDESCHANT TO THE CHARLOW THE CONTROL OF THE 
                                                                                                                                                                                                                                                                                                                                                                           NTHOURK LOBEI EKKTLOENVENDOHTVUGTKNEMKNLELLSTRONVEGSYDGA
YAPVLODERSLINDSTRTKKHTAHFYSKGEBENLEGLGNOTKOLTERAYACTTRISPNT
AVAPVLODERSLINDSTRTKKHTAHFYSKGEBENLEGLGNOTKOLTERAYACTTRISPNT
SQUIFVTQRSKRALKQFRLP LEETELEKRI I VDDTSTOWSKIMKHLTPSTLTQ LIDYINE
KEKGALTQSEPSLSDCLTRSHS I POANRSBLP LAKVSEPS I RPIYLIRVLEQDINSSH
ENTYLPK POLJEKTSGK VELLFKVHIYOKDLEFTETSINGSPGRVGSLGTSATNSVTYKV
KWIEANREQXYPELRVATESSAKTPSKLLDPLAWDNHYGTQ I PKEENKSGKSPEKTA
ITRTTLQSDQEEIDYDDT I SVEMKKEDFD IY DEDDINOSPRSFOKKTRHYFIAAVERLW
TKKKDTILSLNACESNHALAALNEGONK PBI EVTWAK QGATTERLEGONKPVLKRHQRE
TRTTLQSDQEEIDYDDT I SVEMKKEDFD IY DEDDINOSPRSFOKKTRHYFIAAVERLW
                                                                                 LEDETKSWYFTENMERNCRAPCNIQMEDPTFKENYREHAINGYIMDTLPGLVMAQDQR
IRWYLLSMGSNENIHSIHFSGHYFTVKKEEYKMALVNLYBGVFETYEMLPSKAGIWR
VECLIGEHLHAGMSTLFLYYSNKCQTPLGMAAGHIRDFQITASGQYGQWAPKLARLHY
                                                                                                                                                                                                                                   DYGMSSSPHYLRINAQSGSVPQFKKVVPQEFTDGSFTQPLYRGELNEHLGILGPYIRA
EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPMETKTYFWKVQHHM
APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL
                                           SGSINAWSTKEPFSWIKVDLLAPMIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KTHIDGPSLLIENSPSVWQNILESSTEERKVTPLHDRMLMDKNATALRLNHMSNKTT
SSKNWEMVQOKKEGPIPDAQNPDMSTEKMLFILPESHMIQTHGKNSLNSGOGPSPK
QLVSLGPEKSVEGQNFLEEKNKVVVGKGEFTDDVGLEEMVFDSRULFILVLDNLHEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /Translation="MOILISTCEFLCLLRECESATRRYYLGAVELSWDYMQSDLGELP
/Translation="MOILISTCEFLCLLRECESATRRYYLGAVELSWDYMQSDLGELP
/Translation="MOILISTCEFLCLLRECESATRRYYLGAVELSWDYMQSDLGELP
/Translation="MOILISTCEFLC"
/TILKNMASHPYSLHAYGVSYWKASEGAEYDDQTSGREKEDDKVEFPGGSHTYWQYL
KENGPMASDLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKERTGYLHKFILLF
/**
/**CHANGLYGDRDASARAWPKMHTVNGYVNRSLEGIJGCHRKSVYMHV
/**
/**
/**CHANGLYGDRDASARAWPKMHTVNGYVNRSLEGIJGCHRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="CAC21811.1"
/db_xref="GI:12226921"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="unnamed protein product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8967 bp
                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
```

```
BASE COUNT
                                                                                         REFERENCE
AUTHORS
                                                     JOURNAL
FEATURES
                                                                                                                                             SOURCE
                                                                                                                                                     KEYWORDS
                                                                                                                                                                    VERSION
                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                               RESULT 12
                                                                                                                                                                                                           Locus
                                                                                                                                                                                                                       171409
                                                                               TITLE
                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mat_peptide
BASE COUNT 2
                                                                                                                                                                                                                                                    649 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 683
                                                                                                                                                                                                                                                                  966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                        906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                          589 GAAAGAGAATGGTCCAATGGCCTCTGACCCCACTGTGCCTTACCTACTCATATCTTTCTCA 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 575;
                                                                                                                                                                                                                                                                                                                                           469 TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATGATCAGACCAGTCAAAG 528
                                                                                                                                                                                                                                                                                                                                                                                                         786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                           349 CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666 cyctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                289 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              229 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAAATCTTTTCCATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             169 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              109 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGC 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                1 (bases 1 to 8967)
Bodner,M., De Polo,N.J., Chang,S., Hsu,D.Chi-Tang and Respess,J.G.
Retroviral delivery of full length factor VIII
Patent: US 5681746.A 1 28-OCT-1997;
                                                                                                                            Unknown
                                                                                                           Unclassified
                                                                                                                                       Unknown.
                                                                                                                                                                             Sequence 1 from patent US
                                                                                                                                                               171409.1
                                                                                                                                                                                                   171409
         2841 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
    /organism="unknown"
1898 c 1833 g
                             Location/Qualifiers
1. .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2841 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                            GI:3007544
                                                                                                                                                                                               8967 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSETPVINSLDDPLLTRYLRIHPOSWVHOIALRWEVLGCEAODLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NSCSMPLGMESKAISDAQITASSYFTNMFATWSPSKARLHLOGRSNAWRPQVNNPKEW
LQVDFQKTMKVTGYTTQGVKSLLTSMYVKEFLLSSSQDGHQWTLFFQNGKVKVFQGNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1898 с
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57.5%; Score 575; DB 6; Long 100.0%; Pred. No. 5.2e-164;
 1833 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1833 g
                                                                                                                                                                             5681746.
2395 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2395 t
                                                                                                                                                                                       PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HSFVIIIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 426 catgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109 CATGCANATAGAGCTCTCCACCTGCTTCTTCTGTGCCTTTTGCGARTCTGCTTTAGTGC 168
                                                                                                                                                                                                                                              JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    486
                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          289 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              349 GGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               409 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGT 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   649 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                       misc_feature
               sig_peptide
                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  reereratorisanascrirereneses artendes de la reconstruction de la reconst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eukaryota; Metazoa; Primates; Catarrhini; Hominidae; Homo. Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. I (bases 1 to 8967)

1 (bases 1 to 8967)

Nood, W.I., Capon, D.J., Simonsen, C.C., Eaton, D.L., Gitschier, J., Wood, W.I., Capon, D.J., Simonsen, C.C., Eaton, D.L., Wion, K.L., Keyt, B., Seeburg, P.H., Smith, D.H., Hollingshead, P., Wion, K.L., Keyt, B., Tuddenham, E.G.D., Vehar, G.A. and Lawn, R.M.

Delwart, E., Tuddenham, E.G.D., Vehar, G.A. and Lawn, R.M.

Delwart, E., Tuddenham, E.G.D., Vehar, G.A. and Lawn, R.M.

Nature 312 (5992), 330-337 (1984)

Nature 312 (5992), 330-337 (1984)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human mRNA for factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          factor VIII; signal peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X01179.1 GI:31498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSFVIIIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                           kindly reviewed (20-MAR-1986) by W. Wood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57.5%; Score 575; DB 6; Length 8967; 100.0%; Pred. No. 5.2e-164;
                                                       /note="5' untranslated region"
                                                                                                            /db_xref="taxon:9606"
                                                                                                                                                                                            Location/Qualifiers
/product="signal peptide (aa -19 to -1)"
                                                                                                                                           /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8967 bp
                                        .166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRI
```

γ

QΥ

546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605

δÃ Db

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                        486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARNHEN MYHILLAMLEDWULLER VALCEUNGS NOVLEMENT VALCENTARY NET TO THE VARNHEN MYHILLAMLEDWULLER VALCEUNGS.

TDEFFKYREAIOHESGILGPILLYGENGOFTKSDFRCITRYYSFVNMERDLASGL RIPKYKHLKDEPILFOEIFKYKMTYVLBOOFTKSDFRCITRYYSFVNMERDLASGL RIPKYKHLKDEPILFOEIFKYKMTYLLBOOFTKSDFRCITRYYSFVNMERDLASGL RIPKYKHLKDEPILFOEIFKYKMTYLLFSYFDDNRSWLTEBILGRFLDNPAGVQLED PEFQASNIHHSINGYVEDSLOLGSVCHLBYPKWYLLSIGAOTDELSVEFSGYTFKHKWY PEFGASNIHHSINGYVEDSLOLGSCHASDFRRGWFALLKYSGCDKNTGDYYED PEFGASVLLSKNAAIEPRSFSONSRHRSTRAKOROFRATILFENDISKLLSENDLAFKYSTDHASTINK SYNDAYTHP SYLDIFSGLIMLARGAPPHGISLSDLOEBKYTTAATELKKLDFKYSTSINNLISTIPSDLAAFKKKTNASINNSKTIR ROLLHHSGDWYFTPESGLOLDTILFGKKSSPLIFESGRILFKVSTSINNSKTIRSTNNSKTINK AGTDNTSSLGPBKDWYTYDSGLOTTLFGKKSSPLIFESGRILFKVSTSINNSKTIR NSQESSWGKNYSTPSGRILFKKGKAHGPALITKDNALFKVSISLARTINKTSINNSKTIN RATUNDERSLIEBENDVOKKEGT PEDAONPDMSFFKNTFULHERMLMDRNATALRLHMSMKTT NSQESSWGKNYSTSSGRLFKKGKAHGPALITKDNALFKYSISLARTINKTSINNSKTIR SKNHEMPVOKKEGT PEDAONPDMSFFKNTFULHERMLMDRNATALRLHMSMKTT NSQESSWGKNYSTSSGRLFKKGKAHGPALITKDNALFKYSISLARTINGSGOPSFK SKNHEMPVOKKEGT PEDAONPDMSFFKNTFULHERMLMDRNATALRLHMSMTT NTHINGEK IQEAFYDGANFSKKHKHTUTGTKNPENSKNHHLTDSTLTOLDYNE SKNHEMPVOKKEGTT DONNESTELFKHITVTGTKNPKNLFLISTRONTSKKU PAPVULOPFSLANGTFRISTOOANKTHAFSKGEEENLEGLGNOTKOITVEKYACTTRISONTSHLE SQONFYOGRISCHTHASTSTOOANKTHAKTHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDHATATALTYTLDH
                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2841 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AVFIDEGKSWHSETKNSLMODRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
AVFIDEGKSWHSETKNSLMODRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
IGMGTTPEVHSIFLEGHTFLYRNHRQASLEISPITPLTAQTLLMDLGQFLLFCHISSH
QHDGNEAYVKYDSCPEEPQLRMKNNEEAEDYDDDLTDSEMDVVRFDDDNSPSFIQIRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="CAA25619.1"
/db_xref="GI:31499"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="factor VIII precursor"
                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VVITLKNMASHPVSLHAVGVSYMKASEGAEYDDQTSQREKEDDKVFPGGSHTYVMQVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VDAREPPRVPKSEPENTSVVYKKTLEVEFTDHLENIAKPRPPWMGLLGPTIQAEVYDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SWISS-PROT:P00451"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MQIELSTCFFLCLLRFCFSATRRYYLGAVELSWDYMQSDLGELP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VAKKHPKTWVHY I AAEEEDWDYAPLVLAPDDRSYKSQYLNNGPORIGRKYKKVRFMAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FKKKDTILSLNACESNHAIAAINEGONKPEIEVTWAKOGRTERLCSONPPYLKRHORE
FKKKDTILSLNACESNHAIAAINEGONKPEIEVTWAKOGRTERLCSONPYLKRHORE
ITRTTLOSDQEEIDYIDDTISVENKKEDPDIYDEDENOSPRSFQKKTRHYFIAAVERLW
ITRTTLOSDQEEIDYIDDTISVENKKEDPDIYDESTQPLYREELMEHLGLLGPYIRA
DYGMSSSPHVLRNRAOSGSVPOFKKVVFQEFTDGSFTOPLYREELMEHLGLLGPYIRA
EVEDNIMTFRNQASRPYSFYSSYLSYEEDQROGAEPRKNFVKPNETKTYFWKVOHHH
EVEDNIMTFRNQASRPYSFYSSLISYEEDQROGAEPRKNFVKPNETKTYFWKVOHHF
APTKDEFDCKAWAYFSDYDLEKDYHSGLIGPLLVCHTNTLNPAHGROVTYOEFALFFT
APTKDEFDCKAWAYFSDYDLEKDYHSGLIGPLLVCHTNTLNPAHGROVTYOEFALFFT
APTKDEFTKSWYFTENNERNCRAPCNIQMEDPTFKENYRFHAINGYIMDTLPGLYMAQDOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AASYKKKDSGYQESSHFLQGAKKNILSLAILTLEMTGDQREVGSLGTSAINSYTYKKV
AASYKKKDSGYQESSHFLQGAKKNILSLAILTLEMTGDQREVGSLGTSAINSYTYKKV
ENTVLPKPDLPKTGSKVEILPKVHIYQKDLFPTETSNGSPCHLDLVEGSLLQGTEGAI
KWNEANRPGKVPFLRVATESSAKTPSKLLDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SGSINAWSTKEPESWIKVDLLAPMIHGIKTOGAROKESSLYISÓFIIMYSLDGKKWO
SGSINAWSTKEPESWIKVDLLAPMIHGIKTOGAROKESSLYISÓFIIMYSLDGKKWO
TYRGNSTGTLMVFFGUNDSSGIKHNIFWPPIIARYIRLHPTHYSIRKTEMELMGCDL
NSCSMPLGMESKAISDAOITASSYFTNMFATWSPSKARLHLOGRSNAWRPCWNNPKEW
NSCSMPLGMESKAISDAOITASSYFTNMFATWSPSKARLHLOGRSNAWRPCWNPKGFULSSSODGHOMTLFFQNGKVKVFQGNO
LOVDFOKTMKVTGVTTOGVKSLLISMYVKEFLISSSODGHOMTLFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IRWYLLSMOSNENIHSIHFSGHVFTVRKKEEYKMALYNLYPGVFETVEMLPSKAGIWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VECLIGEHLHAGMSTLFLVYSNKCQTPLGMASGHIRDFQITASGQYGQWAPKLARUHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEÄQDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="polyA site"
1898 c 1833 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="polyadenylation signal"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1898 c
                                                                                                                                                                                                                                                                                                                        57.5%; score 575; DB 9; Lo
100.0%; pred. No. 5.2e-164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .8953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          untranslated region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mature factor VIII (aa 1-2332)"
                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2395 t
                                                                                                                                                                                                                                                                                                                                                                                      DB 9; Length 8967;
                                                                                                                                                                                                                                                                                                                        Indels 0; Gaps
```

밁

```
COMMENT
                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
REFERENCE
                                                                                                                                                                                                             REFERENCE
                                                                                                             MEDLINE
                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                              JOURNAL
                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                             MEDLINE
                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HUMFVIIIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          649 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             589 GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         409 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGT 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     349 CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     289 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
               [2] sites; mutations causing hemophilia.
Draft entry and clean copy sequence for [1] kindly provided by
M.A.Truett, 26-FEB-1986.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 288
The mutation at position 1042 results in a change of Glu to Lys,
                                                                                                           88197150
                                                                                                                       A HindIII RFLP and a gene lesion in the coagulation factor VIII
                                                                                                                                                                                                      Youssoufian,H., Wong,C., Aronis,S., Platokoukis,H., Kazazian,H.H. T. and Antonarakis,S.E. Woderately severe hemophilia A resulting from Glu----Gly substitution in exon 7 of the factor VIII gene Am. J. Hum. Genet. 42 (6), 867-871 (1988)
                                                                                                                                                  Bernardi,F., Legnani,C., Volinia,S., Patracchini,P., Rodorigo,G., DeRosa,V. and Marchetti,G.
                                                                                                                                                                                                                                                                                                                                                 Truett, M.A., Blacher, R.W., Burke, R.L., Caput, D., Chu, C., Dina, D., Hattog, K., Kuo, C.H., Masiarz, F.R., Merryweather, J.P., Najarian, R. Potter, S.J., Puma, J., Quiroga, M., Rall, L.B., Randolph, A. Gridea, M.S., Valenzuela, P., Dahl, H.-H.M., Favalaro, J., Hansen, J., Characterization of the polypeptide composition of human factor VIII: C and the nucleotide sequence and expression of the human
                                                                                                                                                                                                                                                                                                                                       8608116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATGAGCAGCCAGTCAAAG 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M14113.1 GI:182817
coagulation factor VIII:C.
Human Kidney, cDNA to mRNA, clones pF8[100,102]; and cell line
GM1416 DNA, clone pF8-4.3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human coagulation factor VIII:C mRNA, complete cds.
                                                                        sites; mutation causing hemophilia.
                                                                                                       Genet. 78 (4), 359-362 (1988)
                                                                                                                                                                                                                                                                                                                                       (5), 333-349 (1985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9029 pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                    Randolph, A.,
     variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                   variation
                                                                                                variation
                                                                                                                                              mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                             /gene="F8C"
```

```
and the one at position 1043 in a change from Glu to Gly. mutation at position 1042 produces a premature stop codon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OHOGHEAY VENDSCHEED CLANKINKOASLELISPLITELIAUTLIMDIGOFILECH ISH
OHOGHEAY VENDSCHEED CLANKINKEAEDY DIDDLIDSEMD VREDDINSPSE IQIRS
TDETEKTRALIGHESGILGPLLYGEVGDTLLIIEKNOASREYKSOYLINIG POR IGRYKKYREMAY
RLEKYKKHYKHYLIAAEEEDHOYAPPLLAADBRSYKSOYLINIG POR IGRYKKYREMAY
RLEKYKHYKHYLIAAEEEDHOYAPPLLAADBRSYKSOYLINIG POR IGRYKKYREMAY
RLEKYKHYKHYLIAGESILGPLLYGEVGDTLLIIEKNOASREYNIYEHRITOWRE LYSR
REPLLICYKESVDQROIJNSDERNYLIFESDPROLIFRYSSEYUMERDLASGI.
PEGAANILHISINOYYEDSIQLEVCLHEVAYWYLLSIOAGTDFLYSESUMERDLASGI.
YEDTITIFPSGESTYFIMMENDGLMILGCHUSDFRINGMTALIKVSSCDKNTGDYYED
YEDTITIFPSGESTYFIMMENDGLMILGCHUSDFRINGMTALIKVSSCDKNTGDYYED
PKIONVSSSDLLMILROSPTPHGLSLSDLQEAKYETFSDDPSGAIDSINISLSEMTHF
AGTDNTSSIGPESGIQLRLNEKLGTTAATELKKLDFKYSSTSINILISTIPSONLA
KTHLDGSULTINGSCYDGNILESDTEKKYTPLHDRILIFKVSSTSINILISTIPSONLA
KTHLDSSLLTINGSYSWONILESDTEKKYTPLHDRILIFKVSISLKINGOOPSPK
MYTHOQEKKIOEBEIKKTTLOENVYLGKGETTKDVGLKEMYFESSINLIBNISKATIR
SSKIMBHYOOKKEGPIPDAQNPDMSFFKMLFLPSSARMIOETHCKUSLUSGOOPSPK
WTHOQEKKIOEBEIKKETLIOENVYLGKGETTKDVGLKEMYFESSINLIFLINLIDNIHBN
YAPVLODFRSLINDSTNITKHTAHFSKKGEETKEGLGNOTKOIVEKYACTTBLSDPGA
SOONFUTORSKRALKOFRIDIEFTEIFERITUDDNTCTTAAGKWANGUTTTAAHFSKKOBEENLEGLGNOTKOIVEKYACTTBLSDPGA
SOONFUTORSKRALKOFRIDIEFTEIFERITUDDNTCTTAAGK
/gene="F8C"
                             /note="a in wt; g in hemophiliac [2]"
                                                                                                                                /note="g in wt; a in hemophiliac [2]"
                                                                                                                                                                                                                                                                                                                           DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY"
                                                                                                                                                                                                  /gene="F8C"
                                                                                                                                                                                                                                       /note="coagulation factor VIII:C"
                                                                                                                                                                                                                                                                                                                                                                                                               VECLIGEHLHAGMSTLFLYYSNKCQTPLGMASGHIRDFQITASGQYGQWAPKLARLHY
SGSINAWSTKEPFSWIKVDLLAPWIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ
TYRONSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLAWELMGCDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APTKDDEFDCKAWAY ISDVDLEKDVHSGLIGPILLVCHTNTLNPAHGRQVTVQEFALFFT
IFDETKSWYFTENMERNCRAPCNIQMEDPTFKENY RFHAINGY LYDLHOGLVMAQDQR
IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEY KMALYNLY PGVFETVEMLPSKAGIWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FKKKDTILSLAAGESNHALAAINEGQNKPEIEVTWAAKGRTERLCSONPPULKHORE
TRTTLOSOQEEIDYDDTISVEMKKEDPDIYOEDENOSPRSFOKKTRHYFIAAVERLW
DYGMSSSPHVLRNRAQSGSVPOFKKVVFQEFTDGSETOPLYRGELMEHLGLIGPYIRA
EVEDNLMYTFRAQASRPYSFYSSLISVEEDOROGAEPRKNFVKPMETKTYFMKVQHHM
                                                                                                                                                                                                                                                                                                     AGH. *BC.
                                                                                                                                                                                                                                                                                                                                                 LQVDFQKTMKVTGVTTQGVKSLLTSMYVKEFLISSSQDGHQWTLFFQNGKVKVFQGNQ
                                                                                                                                                                                                                                                                                                                                                                                  NSCSMPLGMESKA ISDAQITASSYFTNMFATWSPSKARLHLOGRSNAWRPQVNNPKEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOONFYTORSKRALKOFRLPLEETELEKRIIVDDTSTOWSKNMKHLTPSTLTOIDYNE
KEKGAITOSPLSDCLTREHSIPOANRSPLPIAKVSSPPSIRPTYLTRRLFODNSSHLP
AASYRKKOSGVOESSHFLOGAKKNNLSLAILTLEMTODOREVGSLGTSATNSVTYKLP
ENTVLPKPDLPKTSGKVELLPRVHIYOKDLFPTETSMCOSPGHLDVBGSLLOGTEGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KWNEANRPGKVPFILRVATESSAKTPSKLLDPLAWDNHYGTOIPKEEWKSGEKSPEKTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AVFDEGKSWHSETKNSLWQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
IGMCTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFLLFCHISSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VVTTLKNMASHPVSLHAVGVSYWKASBGAEYDDQTSQREKEDDKVFPGGSHTYVWQVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="GDB:G00-119-124"
/protein_id="AAA52485.1"
/protein_id="AAA52485.1"
/db_xref="GI:182818"
/translation="MQIELSTCFFLCLLRECFSATRRYYLGAVELSWDYMQSDLGELP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VDAREPPRVPKSEPENTSVVYKKTLEVEETDHLENIAKPRPPWMGLLGPTIQAEVYDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="preprocoagulation factor VIII:C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="F8C"
172. :228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="coagulation factor VIII:C signal peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="F-VIII mRNA"
172. .7227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /map="xq28"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
```

0

```
ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                RESULT
I05404
                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                              DEFINITION
                                                                                                             REFERENCE
                                                                                                                                        SOURCE
                                                                                                                                                   KEYWORDS
                                                                                                                                                            VERSION
                                                                                                                                                                     ACCESSION
                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                  TITLE
JOURNAL
Query Match
Best Local Similarity
                                                                                                                                ORGANISM
                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        426 catgcaaatagagctctccaacctgcttctttctgtgcctttttgcgattcttgcttttagtgc 485
                                                                source
                                                                                                                                                                                                                                    486
                                                                                                                                                                                                                                                                                                               591
                                                                                                                                                                                                                                                                                                                                                                     786
                                                                                                                                                                                                                                                                                                                                                                                       471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 57.5%; Score 575; Local Similarity 100.0%; pred. No. 5. es 575; Conservative 0; Mismatches
                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGC 230
                                                                                                                                                                                                                                                                        caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                      cyctaayccaagyccaccctgyatygytctyctagtcctaccatccaygctgagyttta 725
                                                                                                                                                                                                                                                                                                             CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185 bp upstrem of SacI site.
                                                                                                                                                                     Sequence 3 from Patent 105404
                                                                                 1 (bases 1 to 7272)
Sarver, N. and Drohan, W.
Factor VIII-C analogs
Patent: EP 0265778-Al 3 04-MAY-1988;
                                                                                                                                                            105404.1
                                                                                                                        Unclassified
                                                                                                                                 Unknown
                                                                                                                                           Unknown.
                                                                                                                                                                                        I05404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="c in wt; t in hemophiliac [3]"
2860 a 1910 c 1848 g 2411 t
                                             /organism="unknown"
1591 c 1533 g
                                                                                                                                                             GI:591046
                                                                        Location/Qualifiers
                                                                                                                                                                                         7272 bp
57.4%;
100.0%;
 Score 574;
Pred. No.
                                                                                                                                                                                EP 0265778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
  DB 6;
1e-163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .2e-164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 9029;
           Length 7272;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                 470
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                 Dр
                                                                                                                                                                                    Qγ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                     Ωy
                                                                                                                          B
                                                                                                                                            QΥ
                                                                                                                                                                  DЪ
                                                           Q
                                                                                  В
                   Qy
                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                        427
                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                      547
                                        301
541 GTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 574
                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                 1 ATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCC
                                                                                                                          gtgtatcotactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagg
                                                                                                                                                                    atgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgcc 486
                                                                                                                                                                                                             GCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTAT
                                                                                                                                                                                                                       gctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttat 726
                                                                                                                                                                                                                                                       ACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACATC
                                                                                                                                                                                                                                                                  acetcagtcgtgtacgaaaaggetctgtttgtagaattcaeggatcaecttttcaacatc 666
                                                                                                                                                                                                                                                                                                ggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaac
                                                                                                                                                                                                                                                                                                                                         ACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTC 120
                                                                                                                                                                                                                                                                                                                                                    accagaagatectacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctc
                                                                                   gtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                             574;
                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                     846
                                                                                                                                  420
                                                                                                                                                                           360
                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                             240
                                                                                         480
```

Search completed: January 17, Job time: 13782 sec 2002, 16:24:21

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                    Result
                                                                                                                                                                                                                                                                                                                                                                                                                                          pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
1000
1000
725.2
725.2
617.4
577.4
577.4
577.8
575.8
575.8
                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    January 17, 2002, 13:04:55; Search time 343.96 Seconds (without alignments) 2492.514 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N_Geneseq_1101:*
1: /SIDS2/gcgdata
2: /SIDS2/gcgdata
2: /SIDS2/gcgdata
3: /SIDS2/gcgdata
4: /SIDS2/gcgdata
5: /SIDS2/gcgdata
6: /SIDS2/gcgdata
6: /SIDS2/gcgdata
7: /SIDS2/gcgdata
8: /SIDS2/gcgdata
9: /SIDS2/gcgdat
11: /SIDS2/gcgdat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 cagctgcgcgctcgctcgct.....agacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-740-211-13_COPY_1_1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          930621 seqs, 428662619 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Maximum Match
  100.0
100.0
72.5
72.5
61.7
61.7
57.7
57.6
57.6
57.6
                                                                                                                                                                                                                                                                                                                     Match
                                                                                                                                                                                                                                                                                                                                               Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            // SIDS2/gcdata/genesed/geneseqn/Na1991.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1991.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1992.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1992.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1994.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1994.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1995.DAT: *
// SIDS2/gcdata/genesed/geneseqn/Na1995.DAT: *
// SIDS2/gcdata/genesed/genesedn/Na1997.DAT: *
// SIDS2/gcdata/genesed/genesedn/Na1997.DAT: *
// SIDS2/gcdata/genesed/genesed/yenesedn/Na1997.DAT: *
// SIDS2/gcdata/genesed/genesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/yenesed/y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /SIDS2/gcgdata/geneseq/geneseqn/NA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1982.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1984.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS2/gcgdata/geneseq/geneseqn/NA1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1987.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1988.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /SIDS2/gcgdata/geneseq/geneseqn/NA1985.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /SIDS2/gcgdata/geneseg/genesegn/NA1989.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /SIDS2/gcgdata/geneseq/geneseqn/NA1998.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /SIDS2/gcgdata/geneseg/genesegn/NA2001.DAT:*
                                                                                                                                                                                                                                                                                                                           Length DB
                                                                                                                                                                                                                                                  \frac{11933}{11933}
                                                                                                              7944
5035
12445
           11846
12022
4832
                                                                                                                                                                                                4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100%
                 21
22
21
22
22
18
21
20
20
20
20
                                                                                                                                                                                                                                                                                                                                         ij
                                                                                                                                                                                                                                                                                  AAD00121
                 AAX82260
AAV19581
                                                                                                                                                                                                      AAD08613
                                                                                                                                                                                                                                                              AAD08612
                                                                                                                                                    AAT69811
                                                                                                                                                                               AAF84647
                                                                                                                                                                                                                                   AAD00122
                                                                                             AAX82259
                                                                                                                          AAA49232
                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1861242
                                                                                                                             Plasmid DLZ6 encod
Plasmid DLZ6 encod
Factor VIII-dB695-
Vector HSQReNeo fo
Vector HSQReNeo fo
Beta-domain delete
                                                                                                                                                                                                                                                                                                                                                        Description
                                     Beta-domain delete
Factor VIII protei
Factor VIII protei
Human factor VIII
                                                                                                                                                                                                                                                                      Human factor VIII
                                                                                                                                                                                                                                                                                                         Recombinant adeno
                                                                                                                                                                                                                        Human factor VIII
                                                                                                                                                                                                                                                     Recombinant adeno
```

X D X	AX X	RESULT AAD00121 ID AAD		444	44	ω 4	37 38	ω <u>μ</u>	U U	ω.	30 10	29	27 28	26	24	23	22	20	19	1 F	16 17	15	13	12		
31-JUL-2000	AAD00121;	LT 1 0121 AAD0012		43 513.8 44 506.4 45 486.	51							ını				574							575	575		
		T 1 121 AAD00121 standard;			7 51.7	51.7				піл	UT C	лО	on to	n U	υį	57 · 4	57.5	57.5	57.5				-1-	57.5		
(first en		rd; DNA;		9009 7914	4545	4275	7440 4272	9354 4373	4629 7440	9009	7056	5094	9009	6006		7053			9029 2				241	4832 L))	
entry)	•	11933 BP.	ALI	19 AAV12112 22 AAF84648	. ≱	9 AAN80446 10 AAN90654	6 AANS0375 9 AAN80447		₽				20 AAX91162			- 2	19 AAVI5500			AAZ38604	2 AAC87525		AAN81439	17 AAT 03571	NAV15338	
entry) entry)			ALIGNMENTS	648	339	554	, 7 1 U	58	96	34	ωυ	Ë	8 2	0	ω υ	7	•	<i>_</i>	. •	•						
t, paav-F8-1.				plasmid DI	Human Factor-VIII Homo sapiens fact	DNA encoding /40 Modified factor VI	Modified factor VI	Beta-domain derece	Sequence encouring huma	B-domain deleted	Human Factor	Sequence of human	Human factor VIII	Human factor	Factor VIII:C (AF9	Human Factor	Human Factor VIII:C codi	Human factor	Human Factor VIII	Human factor VIII	Human factor viii	Human factor VIII	cDNA sequence enco	Factor VIII cDNA i	Human Factor VIII cDNA.	
				DLZ/ encou	or-VIII	encoding /40 A	ctor VI	e encod	ing huma	leted F	s facto	human	r VIII	r VIII	factor VIII	LAIII	c codi	factor III e	VIII	VIII	length	VIII	full-l	ONA i	DNA.	

operably linked to control sequence -

hemophilia, comprises at least a portion of Factor VIII

```
FVIII coding region comprises the heavy chain gene segment with the CC and 5 amino acids from the N-terminus of the 3 domain. The light chain CC segment comprises the C-terminal 85 amino acids of B domain. The light chain CC into the same plasmid seperated by 42 nucleotides coding for 14 residues CC of the B domain. Both the heavy and light chain segments are cloned CC control sequences, that directed. This plasmid is operably linked to CC reactor VIII gene. The adeno-associated viral vectors are used for gene CC therapy to treat haemophilia. This method allows prolonged expression of the CC therapy, because of their broad host range, safety profile and duration of the XXX of expression in the infected hosts.
601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                     541 gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca 600
                                                         541 gatotoggtgagotgootgtggacgcaagatttootootagagtgocaaaatottttoca 600
                                                                                                             481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                    481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                          421 tocaccatgcaaatagagotetecacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                361 tgcgtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                  361 tgcgtgccttgaattactgacactgacattccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                               301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                 241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgcccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                       241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 11933 BP; 3258 A; 2818 C; 2717 G; 3140 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 tttggtcgcccggcctcagtgagcgagcgagcgcgcgcggagaggggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present DNA sequence is a recombinant adenovirus-associated vector, (rAAV) construct, pAAV-F8-1. This expression vector comprises the HNF-3 abbumin promoter, the first intron (-573 to +985) of human elongation factor-lalpha (EFJalpha) gene, human Factor VIII coding sequence (hFVIII) is inserted between the AAV inverted terminal repeat (ITR) regions. The heavert adding regions. The
                                                                                                                                                                                       tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Poca"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 2; Fig 5; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         h 100.0%; Score 1000; DB 21; Similarity 100.0%; Pred. No. 9.8e-278; 00; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB_21; Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 0; Gaps
```

DЪ Qγ DЬ δÃ 밁 Qy DЬ

В Q DЬ Ωy Ъ δĀ В δÃ B γ DЪ

\$88888

```
PR
XX
PA
XX
PI
DR
XX
PI
DR
XX
XX
PI
PI
PI
PI
PI
PI
PS
                                                                                                                                                                                                                                                                                                                     AC

DT

XX

XX

XX

KW

KW

KW

KW

KW

KW

XX

OS

OS

OS

OS

OS

OS

OS

XX

PD

PD

XX
The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a sequence encoding the the comprising a nucleotide and the comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                                                                                                 Claim 18; Fig 5; 90pp; English.
                                                                                                                                   Treating blood clotting disorder, especially hemophilia in mammals, by administering recombinant adeno-associated vectors which express blood coagulation factor \nu_{\rm III} .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ДЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                          WPI; 2001-417955/44.
                                                                                                                                                                                                                                             Couto LB,
                                                                                                                                                                                                                                                                 (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                      21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                  22-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                          28-JUN-2001.
                                                                                                                                                                                                                                                                                                                                                                                                   Chimeric - Oryctolagus cuniculus.
                                                                                                                                                                                                                                                                                                                                                                                                                               Chimeric - Adeno associated virus.
Chimeric - Mus sp.
                                                                                                                                                                                                                                                                                                                                                                                 WO200145510-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                       Chimeric - Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          blood clotting disorder; gene therapy; haemophilia A; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAAV-F8-1; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human factor VIII expressing rAAV vector pAAV-F8-1 partial sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-SEP-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Recombinant adeno-associated viral vector; rAAV; factor VIII; FVIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD08612;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAD08612 standard; DNA; 11933 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961 totoatgtggacotggtaaaagacttgaattcaggcotca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721 9tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661 aacatcgotaagocaaggocaccotggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                     Colosi PC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - Иййнийнийнийнийнийнийнийн
                                                                                                                                                                                                                                                                                          99US-0470618.
                                                                                                                                                                                                                                   Qian x;
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      useful in gene therapy for treating haemophilia A in mammals, in particular humans. The rAAV vector provides high level and long term particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. Physics of biologically active clotting factor VIII in vivo. The plasmid expression of sequence is pAAV-F8-1 vector without the plasmid introned backbone. It comprises HNF-3 mouse albumin promoter, a synthetic introned based on human elongation factor lalpha (EFIalpha) and immunoglobulin General based on human factor vIII coding the plasmid sequences. Bedomain deleted human factor vIII coding sequence, poly A signal based on rabbit beta-globin sequence and AAV inverted terminal repeats (ITRs) at the ends. The vector encodes both the inverted terminal repeats (ITRs) at the ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                             д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 11933 BP; 3258 A; 2818 C; 2717 G; 3140 T; 0 other;
                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                              В
                                                                                                                                                                                                  80
                                                                                                                                        Q
                                                                                                                                                                       밁
                                                                                                                В
                                                                                  QΥ
                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 actaggggttcctgcggccgccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 aaagaagtatattagagcgagtotttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 cagctgcgcgctcgctcgctcactgaggccgccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cagctgcgcgctcgctcactgaggccgccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 aggcaggtaagtgccgtgtgtggttcccgcgggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 aaagaagtatattagagogagtotttotgoacacagatoacotttoogggtgoogooct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggcct 360
                                                                                                                                                                                                                                                                                                                                                                                                                    361 tgcgtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                    481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                            541 gatotoggtgagotgootgtggaogcaagatttootootagagtgccaaaatottttoca 600
                                                                                                                                                                                                                              541 gateteggtgagetgeetgtggaegeaagattteeteetagagtgeeaaaatetttteea 600
                                                                                                                                                                     601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                             661 aacatogctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                               661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
721
                                                                                                                                                                                                                                                                                                                                                                                                     tgcgtgccttgaattactgacactgacatccactttttctttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                              tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                              tocaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                      agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                     ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                         gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                        gttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 1000; DB 22;
100.0%; Pred. No. 9.8e-278;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

8

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
The present DNA sequence is a recombinant adenovirus-associated vector (rAAV) construct pVm4.1cr8deltaB This expression vector comprises the CC (rAAV) construct pVm4.1cr8deltaB. This expression vector comprises the CC promoter, first intron (-573 to +985) of human elongation factor lalpha CC (EF1alpha) gene, human Factor VIII coding sequence (hFVIII) and a CC (F1alpha) gene, human from human growth hormone (hdH). This sequence is CC polyadenylation signal from human growth hormone (hdH). This sequence is polyadenylation signal from human growth hormone (hdH). This sequence is comprised the AAV inverted terminal repeat (ITR) regions. The Lorent comprises the partial signal peptide, Al and A2 domains coding the 19 amino acid signal peptide, Al and the A3 (CC and 5 amino acids from the N-terminus of the B domain. The light chain segment comprises the C-terminal 85 amino acids of B domain and the A3 (CC and 5 amino acids from the heavy and light chain segments are cloned comprises the C-terminal 85 amino acids of B domain and the A3 (CC and 5 amino plasmid seperated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the B domain, that is deleted, This plasmid is operably linked to the control sequences, that directs the transcription and translation of the Factor VIII gene. The adenophilia. This method allows prolonged expression of therapputic levels of Factor VIII in vivo. The rAAV are used for gene control sequences of their broad host range, safety profile and duration of therapy, because of their broad hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901 gtootgaaagagaatggtocaatggoototgacocactgtgcottacctactcatatott 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961 totoatgtggacotggtaaaagacttgaattcaggcotca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAD00122 standard; DNA; 4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recombinant adeno associated vector construct, pVm4.lcF8deltaB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD00122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Recombinant Adeno Associated Vector; rAAV; pVm4.lcF8deltaB; promoter; human Factor VIII; hFVIII; EF1alpha; human elongation factor-lalpha; human growth hormone; hGH; ITR; inverted terminal repeat; haemophilia; human growth hormone; hGH; ITR; inverted terminal repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-JUL-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-OCT-1998;
24-MAR-1999;
30-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene therapy; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Adeno associated virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200023116-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                               New recombinant adenovirus-associated vector, useful for gene therapy to treat hemophilia, comprises at least a portion of Factor VIII operably linked to control sequence .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Couto LB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Colosi PC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US24495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0364862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0125974.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0104994.
```

SQ

```
961 totoatgtggacotggtaaaagacttgaattcaggcotca 1000
                             890 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                            901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D
                                                                                 830 caaagggagaaagaagatgataaagtottoootggtggaagooatacatatgtotggoag 889
                                                                                                γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                     770 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                      781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                         710 gtitatgatacagiggicattacacttaagaacatggcttcccatcctgicagicttcat 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                         721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                             650 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 709
                                                                                                                                                                                                                                                             661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                 590 ttcaacacctcagicgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 649
                                                                                                                                                                                                                                                                                                                601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                    530 gatotoggtgagotgcotgtggaogcaagatttoctcotagagtgccaaaatcttttoca 589
                                                                                                                                                                                                                                                                                                                                                                  541 gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca 600
                                                                                                                                                                                                                                                                                                                                                                                                      470 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 529
                                                                                                                                                                                                                                                                                                                                                                                                                      481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                          410 tocaccatgcaaatagagctotccacctgcttctttctgtgccttttgcgattctgcttt 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421 tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             351 tottaaataccatotactgacactgacatccactttttotttttttctccacaggtatcga- 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361 tgcgtgccttgaattactgacactgacatccactttttctttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 291 cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243 gcagtagtcgccgtgaacgttctttttcgcaacgggtt-----tgccgccccg 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 adagaagtatattagagogagtotttotgoacacagatoacotttoogggtgoogoocot 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186 gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           133 actaggggttcctgcggccgcacgcgtggtggcgcggggtaaa-----ctgggaaagt 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 actaggggttcctgcggccgccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4999 BP; 1375 A; 1151 C; 1155 G; 1318 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagggggggtggccaactccatc 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13 cagetgegegetegeteactgaggeegeeegggeaaageeegggegteggegaee 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       roca l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      859;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72.58;
85.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches 118; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 725.2; DB 21; Length 4999;
Pred. No. 1e-198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
```

γ DЬ δÃ Дb Qy В

В δÃ ДЬ δÃ g Qγ Дb Q DЪ ΩV DЬ Qy В Ŷ DЬ

```
В
                                                                                                 Qy
                                                                                                                              В
                                                                                                                                                                                                                                         CC The present invention relates to a method for treating a subject Suffering from a blood clotting disorder. The method comprises a nucleotide sequence encoding the light chain of factor VIII and a CC sequence encoding the leavy chain of factor VIII. The rAAV vector is cuseful in gene therapy for treating hambolial A in mammals, in CC expression of biologically active clotting factor VIII. The rAAV vector is CC atheorem. It comprises human elongation factor VIII and long term CC and AAV inverted terminal repeats (ITRS) at the ends. The vactor VIII coding sequence, a polly A signal CC encodes both the light and heavy chains of human factor VIII coding sequence, a polly A signal XX separated by 14 amino acids of the B domain.
                                                                                                                                                                                                                                                                                                   Matches 859; Conservative
                                                                                                                                                                                                           Query Match
121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XX
OS
OS
OS
WW
KW
KW
KW
                          73 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 132
                                                                                                                                                                                                                     Sequence 4999 BP; 1375 A; 1151 C; 1155 G; 1318 T; 0 other;
                                           61 tttggtegcecggeeteagtgagegagegagegegeagaggagggagtggeeaacteeate 120
                                                                                 13 cagótgógogotogotogotóactgaggocgocogggoaaagcocgggogtoggocgaco 72
                                                                                                  1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                       Match 72.5%; Score 725.2; DB 85.9%; Pred. No. 1e-198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 19; Fig 6; 90pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD08613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Treating blood clotting disorder, especially hemophilia in mammals, by coagulation factor VIII -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-417955/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Couto LB, Colosi PC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-DEC-2000; 2000WO-US34925.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-JUN-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200145510-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chimeric - Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chimeric - Adeno associated virus.
Chimeric - Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Recombinant adeno-associated viral vector; rAAV; factor VIII; FVIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human factor VIII expressing rAAV vector pVm4.1cF8-B partial sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-SEP-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAD08613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAD08613 standard; DNA; 4999 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            950 totcatgtggacctggtaaaagacttgaattcaggcctca 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0470618.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qian x;
                                                                                                                                                   0; Mismatches 118; Indels
                                                                                                                                                                         _DB 22; Length 4999;
                                                                                                                                           4.
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                        밁
                                                                                                                                     RESULT
AAF84647
                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133 actaggggttcctgcggccgcacgcgtggtggcgcggggtaaa-----ctgggaaagt 185
181 ttgttcttamataccatccagggaatgtttgttcttamataccatctacagttmttggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186 gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243 gcagtagtcgccgtgaacgttctttttcgcaacgggtt-----tgccgccccg 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301 aggcaggtaagtgccgtgtgtggttccccgcgggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                351 tottaaataccatotactgacactgacatccactttttctttttttctccacaggtatcga- 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361 tgcgtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291 cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421 tocaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541 gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            590 ticaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                       661 aacatogotaagocaaggocaccotggatgggtotgotaggtootaccatcoaggotgag 720
                                                                                                                                                                                                                                                                                                                                                                                                      721 gtttatgatacagtggtcattacacttaagaacattggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                         650 aacategetaagecaaggecaecetggatgggtetgetaggteetaecatecaggetgag 709
                                                                                                                                                                                                                                                                                                                                                                                          710 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 769
                                                                                                                                                                                                                                                                                                                                       770 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 829
                                                                                                                                                                                                                                                                                                                                                     781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                        AAF84647 standard; DNA; 7944 BP
                                                                                                                                                                                       950 teteatgtggacetggtaaaagaettgaatteaggeetea 989
                                                                                                                                                                                                             961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                         Adeno-associated virus vector; B-domain; factor VIII; haemophilia A;
                                                 plasmid DLZ6 encoding human B-domain deleted factor VIII.
                                                                          29-JUN-2001 (first entry)
           coagulation disorder; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tecaceatgeaaatagageteteeacetgettetttetgtgeettttgegattetgettt 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agtgccaccagaagatactacctgggtgcagtggaactgtcatggggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gateteggtgagetgeetgtggaegeaagattteeteetagagtgeeaaaatetttteea 589
                                                                                                                                                     σ
                                                                                                                                                                                                                                       gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 949
                                                                                                                                                                                                                                                     gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 1111 1
```

```
FT FT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens.
Hepatitis B virus.
                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  enhancer
                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200127303-A1.
                                                                                                                                                                       Matches 783;
                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12-OCT-2000; 2000WO-US28221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-APR-2001
                                                                                                                                                                                                                                                                vector. The vector comprises a heterologous nucleotide sequence encoding B-domain deleted factor VIII operably linked with at least one encoding B-domain deleted factor VIII operably linked with at least one enhancer and at least one promoter. The method results in the production of high titer ranky vector stocks carrying the B-domain deleted factor vIII transgenes and expression cassettes, which generate adequate titers of virus for in vivo administration. The recombinant vectors are useful of virus for in vivo administration. The recombinant presses the encoded of virus for the vivo administration. The secreted into the blood. They are bedomain deleted factor VIII, which is secreted into the blood. They are also useful for the treatment of other coagulation disorders. The present sequence encodes a B-domain deleted factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New recombinant adeno-associated virus vector, useful for treating haemophilia A, comprises heterologous nucleotide sequence encoding b-domain deleted human factor VIII operably linked with liver-preferred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Walsh CE, Chao H, Burstein H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (UYNC-) UNIV NORTH CAROLINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     expression control element -
                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 64; Fig 1; 87pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                           The specification describes a recombinant adeno-associated virus (rAAV)
                                                                                                                                                                                                                                         Sequence 7944 BP; 2142 A; 1902 C; 1909 G; 1991 T; 0 other;
135 aggggttcct-----cagatctctttctaagtaaacagtacatgaaccttt 180
                          124 aggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgtttg 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-273781/28.
                                                                                                             Local Similarity
                                                      75 gcccgggcgcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatcact 134
                                                                                                                             4 ctgcgcgctcgctcgctcactgaggccgccgggcaaagcccggggcgtcgggcgaccttt 63
                                                                      ggtcgcccggcctcagtgagcgagcgagcgcgcagagagggggtggccaactccact 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0158780
                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            150..278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag= a
/note= "inverted terminal repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4840..4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= b
/note= "hepatitis B virus EnhI enhancer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4916..5084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= d
/note= "TK polyA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= C
/note= "human B-domain deleted factor VIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420..4835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note= "inverted terminal repeat"
                                                                                                                                                                                              61.7%;
78.5%;
                                                                                                                                                                                  0; Mismatches 196;
                                                                                                                                                                                              Score 617.4; DB 22; Length 7944; Pred. No. 1.4e-167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lynch CM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Stepan AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Munson K;
                                                                                                                                                                                                  18; Gaps
```

В

ω --

```
DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
Homo sapiens.
                Factor VIII-db695-HCII; heparin cofactor II; blood coagulation; blood clotting; procoagulant; anticoagulant; antithrombotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                Factor VIII-dB695-HCII DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                            10-AUG-1997 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                     AAT69811;
                                                                                                                                                                  AAT69811 standard; DNA; 5035 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Д
                                                                                                                                                                                                                                    957 catgtggacctggtaaaagacttgaattcaggcctca 993
                                                                                                                                                                                                                                                    964 catgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                 897 ctgaaagagaatggtocaatggcototgacccactgtgcottacctactcatatctttct 956
                                                                                                                                                                                                                                                                                                  904 ctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttct 963
                                                                                                                                                                                                                                                                                                                                           777 gttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaa 836
                                                                                                                                                                                                                                                                                                                                                                                                                      784 gttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaa 843
                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                               717 tatgatacagtggtcattacacttaagaacatggcttccccatcctgtcagtcttcatgct 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                724 tatgatacagtggtcattacacttaagaacattggcttcccatcctgtcagtcttcatgct 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         657 atcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtt 716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           664 atcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtt 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    597 aacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggttcaccttttcaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   604 aacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaac 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            544 ctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattc 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       484 gccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgat 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                417 accatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagt 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 424 accatgcaaatagagctctccacctgcttcttctgtgccttttgcgattctgctttagt 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360 tttgcaagaggaagcaaaaagcctctccacccaggcctggactcgagagct---tcgacc 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             364 gtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgattcc 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300 aagcaaaaagceteteeaceeaggeetggaatgttteeaceeaatgtegageagtgtggt 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               304 caggtaagtgccgtgtgggttcccgcggggcctggcctcttacgggttatggcccttgc 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                244 gaagtatattagagogagtotttotgoacacagatcacotttocgggtgoogoooctagg 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 accccgttgctcggcaacggcctggtctgtgccaagtgtttgctgacgcaacccccactg 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184 ttettaaataeeatceagggaatgtttgttettaaataeeatetaeagttattggttaaa 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattc 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9ccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgat 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9ctggggcttggccataggccatcagcgca-tgcggatctcagtgtggttttgcaagagg 299
```

DЬ

Дb Qy Q Ъ δÃ Ъ Qγ В Qγ 밁 γQ

```
γ
                                                                                           B
                                                                                                                                                DЪ
                                                                                                                                                                          Š
                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 578;
                                                                                                                                                                                                                                                                                                                                                                                                Query Match
330 tttatgatacagiggicattacacttaagaacaiggcitcccatccigicagicitcaig 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF XX PX XX
               722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                      270 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg 721
                                                                                                                             602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                               210 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca
                                                                                                                                                                    150 atctoggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 209
                                                                                                                                                                                                                                                                                                                                                                                                                                     A DNA molecule (AAM769811) codes for Factor VIII-dB695-HCII (AAW18670), a hybrid protein in which amino acids 712-736 of Factor-dB695 feator VIII del868-1562) B-domain are replaced by amino acids of human heparin cofactor II (HCII). It was obtd. by pcR total liver cDNA, fusion to sequences encoding Factor VIII aa706-711 and aa737-743, and incorporation of the construct into cwing gene therapy techniques, has increased procagulant acitic region, and can be used to treat blood coagulation disorders such as haemophilia A.
                                                                                                                                                                                   542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                                                                                                                                          482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                422 ccaccatgcaaatagagctctccacctgcttcttctgtgccttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5035 BP; 1484 A; 1127 C; 1110 G; 1314 T; 0 other;
                                                                                                                                                                                                                          90 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 149
                                                                                                                                                                                                                                                                                30 ccaccatggaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttta 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 16; Page 52-60; 96pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hybrid Factor VIII with modified activity, comprises region from donor anticoagulant or antithrombotic protein - useful for treatr
                                                                                                                                                                                                                                                                                                                                                                                     rocal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAW18670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1997-289291/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (IMMO ) IMMUNO AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Voorberg JJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W09718315-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                          h 57.7%; Score 577.4; DB 18; Length 5035; Similarity 99.8%; Pred. No. 3.9e-156; 78; Conservative 0; Mismatches 1; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95US-0558107.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96WO-EP04977.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product= heparin cofactor II region (aa51-81)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product= Factor VIII-dB695-HCII
2225..2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for treatment
                                                                                                                                                                                                                                                                                                                                          0; Gaps
```

0,

```
QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
AAA49232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         782 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         390 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hemostatic; antianemic; antidiabetic; nootropic; neuroprotective; vector; osteopathic; antisickling; immunostimulant; gene therapy; collage; endothelial cell; peripheral blood; buffy coat cell; VEGF; PCR primer; endothelial growth factor; boyine brain extract; haemophilia; vascular endothelial growth factor; boyine brain extract; haemophilia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAA49232 standard; DNA; 12445 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vector HSQReNeo for transforming endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26-SEP-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    570 ctcatgtggacctggtaaaagacttgaattcaggcctca 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Factor VIII; human; transgene; adenosine deaminase deficiency; SS; sickle cell anaemia; thalassemia; diabetes; alpha-antitrypsin deficiency; Alzheimer's disease; brain disease; heart disease; immune system defect;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200032750-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-NOV-1999;
                                                                                                                                                                                                                                                                                 Expanding population of endothelial cells useful to biocompatibilize implantable medical devices comprises contacting buffy coat cells with collagen I coated surface in culture medium comprising vascular endothelial growth factor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hebbel RP, Lin Y, Lollar JS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (HEBB/) HEBBEL R P. (LINY/) LIN Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MINU ) UNIV MINNESOTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24-NOV-1998;
                      The invention relates to a method for expanding the population of endothelial cells (EC) obtained from peripheral blood, by culturing, in contact with a collagen I coated surface, buffy coat cells obtained from peripheral mammalian blood in the presence of a culture medium from peripheral mammalian blood in the presence of a culture medium containing vascular endothelial growth factor (VEGF) and free of bovine to the blood stream of a mammal, so that an effective amount of into the blood stream of a mammal, so that an effective amount of the blood stream of a mammal, so that an effective amount of the blood stream of a mammal, so that an effective amount of the blood stream of a mammal, so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the blood stream of a mammal so that an effective amount of the solution and 
                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2000-412303/35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7
                                                                                                                                                                                                                                    Claim 19; Fig 4; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (LOLL/) LOLLAR J S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   teetgaaagagaatggteeaatggeetetgaceeactgtgeettaeetaeteatatettt 961
Factor VIII protein is secreted in the blood stream of the mammal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tectgaaagagaatggteeaatggeetetgaeeeactgtgeettaeetaeteatatettt 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fracture; osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US28033.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98US-0109687.
```

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                           AAX82259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This sequence represents the vector HSQReNeo where the human factor VIII gene into which an enhanced green fluorescent protein coding sequence (HSQ) has been inserted, is subcloned. Transgenic EC transduced sequence (HSQ) has been inserted, is subcloned. Transgenic EC transduced in vitro are useful for improving prosthetic implants EC is also useful for disgnosing clotting disorders where indication or disease is for dispnosing clotting disorders where indication or disease is also associated with a reduction in the activity of an enzyme. EC is also associated with a reduction in the activity of an enzyme. EC is also the displaced of the contract of diseases including useful in gene therapy for treating the variety of diseases including useful in gene therapy for treating the variety of diseases including useful in gene therapy for treating the variety of the same that also disorders adenosine deaminase deficiency, sickle cell anemia, thalassemia, hemophilia, diabetes, alpha-antitrypsin deficiency, brain disorders such as Alzheimer's disease, heart diseases, defects in immune system, such as Alzheimer's disease, heart diseases, defects in immune system, for repairing bone fractures and to treat or prevent osteoporosis.
KW XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 12445 BP; 3255 A; 2989 C; 2951 G; 3250 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422 ocaccatgcaaatagagctctccacctgcttctttctgtgcccttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        763 ccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttta 822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1003 acategetaageceaaggecaccetggatgggtetgetaggteetaceatecaggetgagg 1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              823 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1123 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1063 titatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     883 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 942
                                                                                                                                                                                                                                                                                                                                                                                                                                      722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                                                                                                                                                                                                                                                     1303 ctcatgtggacctggtaaaagacttgaattcaggcctca 1341
                                                                                                                                                                                                                                                                                                                                                            1243 tectgaaagagaatggteeaatggeetetgaeeeactgtgeettaeetaeteatatettt 1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                              AAX82259 standard; cDNA; 9164 BP
                splicing pattern; RNA processing; gene regulation; beta-domain; human;
                                                                        Beta-domain deleted Factor VIII protein encoding gene (uncorrected).
                                                                                                                                                     AAX82259;
                                                                                                                                                                                                                                                                                                      962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                 18-AUG-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggttcaccttttca 1002
                                                                                                                                                                                                                                 œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57.7%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 577.4; DB 21
pred. No. 5.8e-156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 21;
                                                       gene therapy; clinical disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 12445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

```
δõ
                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 577;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
1301 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 1360
                                                               1241 acategetäägeeääggeeäeeetggatgggtetgetaggteetaeeateeaggetgagg 1300
                                                                                                                               1181 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggttcaccttttca 1240
                  722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                                                                                                                                                              1121 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 1180
                                                                                  662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg 721
                                                                                                                                                                                                                                                                                                                                  1001 ccaccatggaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttta 1060
                                                                                                                                                 602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                    542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                                                                                                                                                                 1061 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             levels and tissue-specific expression. The methods are used for identification and correction of consensus splice sites, addition of introns, optimization of 5' and 3' untranslated regions and increase in cytoplasmic RNA accumulation. Hence the DNAs are useful in gene therapy to treat a clinical disorder, to study RNA processing and/or gene therapy beta-domain deleted factor VIII protein encoding gene sequence (construct pry-2). This was used to develop a new coding sequence for beta-domain deleted factor VIII protein by correcting the consensus splice sites.
                                                                                                                                                                                                                                                                                   482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                    422 ccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 9164 BP; 2451 A; 2170 C; 2081 G; 2462 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The invention describes novel genes and vectors exhibiting increased expression and novel splicing patterns. It provides a gene encoding a Factor VIII protein, that comprises one or more consensus or near consensus splice sites which have been corrected to increase expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The method, DNA sequences and expression vectors can be used to increase the expression of a gene, especially a Factor VIII gene. Genes containing modified 5' and/or 3' untranslated regions have optimized expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 2; Page 79-89; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   patterns, useful for expression of, e.g. beta-domain deleted factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genes and vectors exhibiting increased expression and novel splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P-PSDB; AAY21675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bidlingmaier S, Gonzales JEN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (IMMU-) IMMUNE RESPONSE CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-JAN-1998;
05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09929848-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1999-385602/32.
                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0071596.
97US-0067614.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US25354.
                                                                                                                                                                                                                                                                                                                                                                                                                   57.6%; Score 575.8; DB 20; Length 9164; 99.7%; Pred. No. 1.5e-155;
                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ill CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yang co;
                                                                                                                                                                                                                                                                                                                                                                                                          2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genes containing
                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

В δÃ DЪ Qγ В Qy DЪ

Sequence 11846 BP; 3419 A; 2718 C; 2607 G; 3102 T; 0 other;

```
CC Expression and novel splicing patterns. It provides a gene encoding a CC expression and novel splicing patterns. It provides a gene encoding a CC consensus splice sites which have been corrected to increase expression. The method, DNA sequences and expression vectors can be used to increase condified 5' and/or 3' untranslated regions have optimized expression of a gene, especially a Factor VIII gene. Genes containing CC introns, optimization of 5' and 3' untranslated regions have optimized expression CC cytoplasmic RNA accumulation. The methods are used for cytoplasmic RNA accumulation. Hence the DNAs are useful in gene therapy CC regulation. The present sequence consensus splice sites, addition of CC cytoplasmic RNA accumulation. Hence the DNAs are useful in gene therapy containing the present sequence construct pLZ-6). This contains an XXX intron spanning the beta-domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAX82261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                   Example 1; Page 101-115; 123pp; English.
                                                                                                                                                                                                                                                                                   patterns, useful for expression of, e.g. beta-domain deleted factor
                                                                                                                                                                                                                                                                                                Genes and vectors exhibiting increased expression and novel splicing
                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAY21676.
                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-385602/32.
                                                                                                                                                                                                                                                                                                                                                                                                                     (IMMU-) IMMUNE RESPONSE CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-JAN-1998;
05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Factor VIII protein; gene modification; gene therapy; clinical disorder; splicing pattern; RNA processing; gene regulation; beta-domain; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Factor VIII protein encoding gene (construct plz-6).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-AUG-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAX82261 standard; cDNA; 11846 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1541 ctcatgtggacctggtaaaagacttgaattcaggcctca 1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAX82261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1421 aaagggagaaagaagatgataaagtottoootggtggaagccatacatatgtotggcagg 1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1361 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               902 tootgaaagagaatggtocaatggcototgacccactgtgcottacctactcatatottt 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          782 ctgttggtgtatcctactgggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0071596.
97US-0067614.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US25354.
                                                                                                                                                                                                                                                                                                                                                                                        Gonzales JEN,
                                                                                                                                                                                                                                                                                                                                                                                 Ill CR, Yang CQ;
```

Tue

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                RESULT 1
AAX82260
ID AAX8
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                 δõ
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1001 ccaccatggaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttta 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1121 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1241 acategetaagecaaggecaccetggatgggtetgetaggtectaccatecaggetgagg 1300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1181 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggttcaccttttca 1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422 ccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  542 atctcggtgagctgctgttggacgcaagatttcctcctagagtgccaaaatcttttccat 601
                                                                                                                                                                                                                                                                                                                                                                                                                                        1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          662 acatogotaagocaaggocaccotggatgggtotgctaggtcotaccatccaggotgagg 721
                                                                                                                                                                                                                                                                                                                                                                                        1481 teetgaaagagaatggteeaatggeetetgaeceaetgtgeettaeeteaeteatatetti 1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                          1541 ctcatgtggacctggtaaaagacttgaattcaggcctca 1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAX82260 standard; cDNA; 12022 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            782
                                                                                                                                                                        Factor VIII protein; gene modification; gene therapy; clinical disorder; splicing pattern; RNA processing; gene regulation; beta-domain; human;
                                                                                                                                                                                                             Factor VIII protein encoding gene sequence.
                                                                                                                                                                                                                                      18-AUG-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                      962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                           Homo sapiens.
                                                           exon
                         intron
                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     577; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                       ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                    tcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatcttt 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
   /*tag= c
/number= 1
                         /number= 1
3295..6152
                                                                                                                     Location/Qualifiers
                                                                        /product= "Factor VIII protein"
/note= "contains introns"
                                                               1006..3294
                                                                                                - fag-
                                                                                                            1006..823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.6%; Score 575.8; 99.7%; Pred. No. 1.6
                                                     b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.6e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 11846;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
The invention describes novel genes and vectors exhibiting increased CC expression and novel splicing patterns. It provides a gene encoding a CC expression and novel splicing patterns. It provides a gene encoding a CC Factor VIII protein, that comprises one or more consensus or near CC ensensus splice sites which have been corrected to increase expression. The method, DNA sequences and expression vectors can be used to increase containing the expression of a gene, especially a Factor VIII gene. Genes containing CC modified 5' and/or 3' untranslated regions have optimized expression cC identification and correction of consensus splice sites, addition of CC introns, optimization of 5' and 3' untranslated regions and increase in CC introns, optimization of 5' and 3' untranslated regions and increase in CC cytoplasmic RNA accumulation. Hence the DNAs are useful in gene therapy CC treat a clinical disorder, to study RNA processing and/or gene CC regulation. The present sequence represents the gene comprising the CC coding region of a full length Factor VIII protein, wherein the coding contains an intron spanning the portion of the gene encoding the CC hate-Admain
                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                          В
                                                                            밁
                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 577; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-JAN-1998;
05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9929848-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genes and vectors exhibiting increased expression and novel splicing patterns, useful for expression of, e.g. beta-domain deleted factor \mbox{\sc VIII}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bidlingmaier S, Gonzales JEN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IMMU-) IMMUNE RESPONSE CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAY21675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1999-385602/32.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 13; Page 89-100; 123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 12022 BP; 3471 A; 2749 C; 2640 G; 3162 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     beta-domain.
                                                                                                                                                                                                                                                                                                                                                                           1001 ccaccatggaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttta 1060
                                                                                                                                                                                                                                                                                                  1061 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 1120
                                                                                                                                                                                                                          1121 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccat 1180
                                                                                                                                                                                                                                                                                                                                                                                             422 ccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttta 481
                                                                                                                                                1181 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggttcaccttttca
1301 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 1360
                                                                        1241 acatogotaagocaaggocaccotggatgggtotgctaggtoctaccatocaggotgagg 1300
                                                                                                                                                                  602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca
                  722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                                                            662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg 721
                                                                                                                                                                                                                                                                                                                       gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                              atotoggtgagotgootgtggaogcaagatttootootagagtgoocaaaatottttooat 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0071596.
97US-0067614.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98WO-US25354.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "intron spanning the portion the g
segment encoding the beta-domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 575.8; DB 20
Pred. No. 1.6e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ill CR, Yang CQ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 20; Length 12022;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                              1240
```

0;

```
RESULT 11
AAV19581
AC AAV1958
AC AAV196
AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
factor VIII. This is used in the construction of recombinant retroviral vectors expressing human factor VIII. The invention provides the preparation of replication defective recombinant retrovirus (RRV) expressing a therapeutic protein. The RRV preparation is resistant to systemic expression of the therapeutic protein when administered measurable level of the therapeutic protein when administered measurable level of the therapeutic protein being produced in the blood of the human for a period of at least 30 days after the administration c
                                                                                                                                                                                                                                                   This cDNA encodes the beta-domain deleted SQN deletion protein of human
                                                                                                                                                                                                                                                                                                                              Example 28; Pages 210-213; 272pp; English.
                                                                                                                                                                                                                                                                                                                                                                                               New replication defective recombinant retro-viruses - which can be administered to provide long term systemic expression of therapeuti protein in blood, useful in, e.g. treating hyper-coagulable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-PSDB; AAW46246.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1998-086966/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jolly DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         De LA VEGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-JUN-1997;
03-JUL-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Replication defective; recombinant retrovirus; RRV; therapeutic protein; haemophilia; thrombosis; hypercoagulable disorder; liver disease; human; hepatitis; thalassemia; phenylketonuria; Lesch-Nyhan syndrome; diabetes; cystic fibrosis; Duchenne's Muscular Dystroph; hypercholesterolemi; hypopituitarism; adenine deaminase deficiency, HIV infection; anaemia; inflammatory disease; factor VIII; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9800541-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human factor VIII beta-domain deleted SQN deletion cDNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-AUG-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAV19581,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAV19581 standard; cDNA; 4832 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1541 ctcatgtggacctggtaaaagacttgaattcaggcctca 1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1481 teetgaaagagaatggteeaatggeetetgaeeeaetgtgeettaeettaetettt 1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1361 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         842 aaagggagaaggagatgataaagtetteeetggtggaagceatacatatgtetggeagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatcttt 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lee R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barber JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Depolonj,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9608-0696381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0869309.
96US-0645601.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97WO-US11784.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JR, Boder M, Chang SMW, Chon
olonj, Greengard J, Hsu DC,
Mittelstaedt DM, Prussak CE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chong K;
DC, Ibanez CE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Respess JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                therapeutic
           of
```

XX AC XX DT DT XX

20-JUL-1998 (first entry)

AAV15338;

AAV15338 standard; DNA; 4832 BP

Factor VIII; blood clotting; haemophilia A; gene therapy;

SS

vector; human;

Human Factor VIII SQN deletion mutant DNA.

RESULT 12

```
밁
                                                   Qy
                                                                                         밁
                                                                                                                          Š
                                                                                                                                                              В
                                                                                                                                                                                              δ
δ
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                 γ
                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                     966 tgtggacctggtaaaagacttgaattcaggcctca 1000
611 tgtggacctggtaaaagacttgaattcaggcctca 645
                                                               551 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                                  906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttcca
                                                                                                                                                                                                                           786 tggtgtatcctactggaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the RRV vector preparation. RRV's can be used for in vivo delivery of therapeutic protein to treat, e.g. haemophilia A, haemophilia B, thrombosis, hypercoagulable disorders, liver diseases such as hepatitis, disorders such as thalassemia, phenylketonuria, Lesch-Nyhan syndrome, Muscular Dystrophy, inherited emphysema, familial hypercholesterolemia, antitrypsin deficiency, dacher's syndrome, anemia, hypercholesterolemia, antitrypsin deficiency, Guacher's Syndrome, anaemia, infections such as inflammatory disease or graft versus host disease, autoimune or surviving inactivation in human serum thereby allowing efficient gene transfer over prolonged periods of time.
                                                                                                                                                                                                                                                                                                                                                  311 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta
                                                                                                                                                                                                                                                                                                                                                                     666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                    251 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4832 BP; 1381 A; 1089 C; 1055 G; 1307 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      426 catgcaaatagagctotccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71 catgcaaatagagototocacotgottotttotgtgcotttttgcgattotgctttagtgc 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                   ggagaaagaagatgataaagtottocotggtggaagcoatacatatgtotggcaggtoot 905
                                                                                                                                                                                                        tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                               tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 430
                                                                                                                                                                                                                                                                                              tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                         cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57.5%; Score 575; DB 19; 100.0%; Pred. No. 1.9e-155; tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 4832;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                  610
                                                                                                                                                                                                                                                                                                                                                     370
```

0

Page 11

```
This DNA sequence includes a coding region for the B domain CC deletion mutant SQN (see AAW44372) of human Factor VIII. The SQN cmutant is created by fusing Ser-743 to Gln-1638 of native Factor CC VIII (see AAW44373) to form a Ser-Gln-Assn (SQN) link between the A2 CC vIII (see AAW44373) to form a Ser-Gln-Assn (SQN) link between the A2 CC and A3 Factor VIII (sometime when compared to plasmid-derived CC and A3 Factor VIII (sometime vivo influence the in vivo cc pharmacokinetics, but the reduced size of the molecule appears to CC pharmacokinetics, but the reduced size of the molecule appears to CC preparations of replication defective recombinant retrovirus (RV) CC expressing a B domain-deleted human Factor VIII protein, where the composition of the viscous pharmacokineting human cells, is resistant to degradation by human complement and is capable of inducing to degradation by human complement and is capable of inducing congeterm (at least 30 days and up to 6 months or longer long-term (at least 30 days and up to 6 months or longer const-injection) systemic expression of Factor VIII when
                                                                                                                                                                                                                                              Qy
                                                                                                                                                       밁
                                                                                                                                                                                  ρy
                                                                                                                                                                                                                   В
                                                                                                                    QΥ
                                                          δÃ
                                                                                          밁
                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                  Matches 575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9800542-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-JUN-1997;
03-JUL-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 6; Page 174-175; 236pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domain-deleted human factor VIII or human factor IX for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB; AAW44372.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1998-086967/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New replication defective recombinant retroviruses - which express B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 treatment of haemophilia
                                                                                                                                                                                                                                                                                                                                                              Sequence 4832 BP; 1381 A; 1089 C; 1055 G; 1307 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                           administered to a haemophilia A patient.
                                                                                                                                                                    486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                  426 catgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgc 485
                                                                                         131 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 190
666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                              251 cacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttcaacat 310
                                                                                                                                                                                                                    71 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vega
                                            caceteagtegtgtacaaaaagactetgtttgtagaattcacggatcacettttcaacat 665
                                                                                                                                                                                                                                                                                                  h
57.5%; Score 575; DB 19; I
Similarity 100.0%; Pred. No. 1.9e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barber JR, Boder M, Chang SM, Chong K;
a D, Depolo NJ, Greengard J, Hsu DC, Ibb
Mittelstaedt DM, Prussak CE, Respess JG;
                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97WO-US11785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers 72..4445
                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                               Length 4832;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ibanez CE;
                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                            0
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QУ
                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAT03571
                                                                                                              PA
XX
PI
XX
DR
DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          431 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAT03571 standard; cDNA; 6300 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAT03571;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Factor-VIII cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   611 tgtggacctggtaaaagacttgaattcaggcctca 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                     Factor-VIII; blood clotting; haemophilia A; ss.
                                                                                                                                                                                                                                                                                                                                                       sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                 mat_peptide
                                                                                                                                                                                                                                                                 EP690126-A1.
A human liver cDNA sequence (AAT03571) in expression vector pCLB89 encodes the Factor-VIII precursor (see AAR86863). The cDNA was subjected to loop-out mutagenesis and used in the construction of subjected to loop-outmutagenesis and esd in the construction of vectors utilised in the transformation of e.g. COS, CHO and C127
                                                                                                                                                                                              12-JUN-1987;
                                                                                                                                                                                                                   13-JUN-1988;
                                                                                                                                                                                                                                          03-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                              P-PSDB; AAR86863
                                                                                                                            WPI; 1996-051261/06.
                                                                                                                                                                      (IMMO ) IMMUNO AG.
                                                         Example 1; Fig 1; 31pp; English.
                                                                              deficiency, esp. haemophilia
                                                                                         New deletion mutant of factor VIII - useful for treating factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                   Van Leen RW, Van Ooyen AJJ,
                                                                                                                                                                                                 87EP-0201121
                                                                                                                                                                                                                       88EP-0110468.
                                                                                                                                                                                                                                                                                                                                      /*tag= b
64..6300
                                                                                                                                                                                                                                                                                                                                                             /*tag=
7..63
                                                                                                                                                                                                                                                                                                                /note= "the sequence is incomplete since
                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                     . 6300
                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                    ٥
                                                                                                                                                                                                                                                                                           it encodes only amino acids of mature Factor-VIII"
                                                                                                                                                             Verbeet MP;
```

```
IJ
                                                                                                                                                                                          AAN81439
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9999998×3
                                                                Homo sapiens
                                                                           Factor VIII; blood clotting disorders; ss.
                                                                                                    Factor VIII cDNA insert of pCLB89
                                                                                                                                 08-OCT-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                         AAN81439;
                                                                                                                                                                     AAN81439 standard; cDNA; 8241 BP
                                                                                                                                                                                                                         546 tgtggacctggtaaaagacttgaattcaggcctca
                                                                                                                                                                                                                                     966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                               486 gaaagagaatggtocaatggcototgacccactgtgcottacctactcatatotttctca
                                                                                                                                                                                                                                                                          906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                  846
                                                                                                                                                                                                                                                                                                                                                     366 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                           726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                             786
                                                                                                                                                                                                                                                                                                                                                                                                                                             246 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta
                                                                                                                                                                                                                                                                                                                                                                                                                                                       666 cyctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6300 BP; 2026 A; 1340 C; 1323 G; 1611 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mammalian cells, or Bacillus or Kluyveromyces microbial cells, for prodn. of a Factor-VIII derivative useful in the treatment of haemophilia A. The Factor-VIII derivative has the formula NR-LR-CR, where NR is amino acids 1-712 of Factor-VIII, LR is a short peptide (AAR86864), and CR is amino amino acids 1638-2332 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 125
                                                                                                                                                                                                                                                                                                         ggagaaagaagatgataaagtottocotggtggaagccatacatatgtotggcaggtoot 485
                                                                                                                                                                                                                                                                                                                     ggagaaagaagatgataaagtottocotggtggaagcoatacatatgtotggcaggtoot 905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6 catgcaaatagageteteeacetgettetttetgtgeetttttgegattetgetttagtge 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Loca
                                                                                                                                                                                                                                                                                                                                                                   tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                        Location/Qualifiers 7..7062
  /product=factor VIII
                  /*taq=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%; Preu. ...
+ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57.5%; Score 575; DB 17; I
100.0%; Pred. No. 2.1e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 6300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,:
B
                                           Вb
                                                                QΥ
                                                                                        В
                                                                                                            QΥ
                                                                                                                                   Ъ
                                                                                                                                                        Qy
                                                                                                                                                                               Db
                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                           ДЬ
                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
```

```
Matches 575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
426 ggagaaagaagatgataaagtottoootggtggaagocatacatatgtotggcaggtoot
                 366 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                           786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                     726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                           246 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta
                                                                                                                                                                                                                                                                                                                     606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                             546 eggtgagetgeetgtggaegeaagattteeteetagagtgeeaaaatetttteeatteaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The cDNA was prepd. from human liver RNA. Clone pCLB89 was produced by combining inserts from several positive clones isolated from the cDNA library. The sequence can be inserted into expression vectors for the prodn. of recombinant factor VIII. The protein produced is useful for treating blood clotting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                           126 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             426 catgcaaatagagctotccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 8241 BP; 2625 A; 1759 C; 1703 G; 2154 T; 0 other:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; ; 02pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Expression system for producing factor VIII polypeptide in microbial cells - contg. open reading frame and functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          initiation and termination regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAP81113.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1988-015822/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Van Ooyen AJJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (KONN ) GIST-BROCADES NV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 catgoaaatagagototocacotgottotttotgtgcotttttgcgattotgctttagtgc 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-DEC-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-JUL-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-JUL-1987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-JAN-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EP253455-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 roca I
                                                                                                                                                 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 365
                                                                                                                                                                                                                                             C9Ctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                   cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86GB-0030699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87EP-0201379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86GB-0017594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Andreoli PM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= }
64..7059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7..63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57.5%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 575; DB 9; Le
; Pred. No. 2.4e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Van Mourik JA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pannekoek H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 8241;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Gaps
```

0,

```
AAN81096
AAN81096
XX
AAC
AAN
XX
AAN
DT 29:
DT 29:
XXX
KW Haee
XXX
Hae
Pr CDS
FT CDS
FT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
                                Š
                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA sequence encoding human Factor VIII signal sequence and mature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAN81096;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAN81096 standard; cDNA; 8241 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haemophilia A; bloodclotting; treatment; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-OCT-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12-JUN-1987;
03-JUN-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-DEC-1988
                                                                                                                                                                                                                                                                                                                                                                                                                        The isolation of Factor VIII mRNA from human liver, and the preparation, purification and identification of cDNA and its assembly in the plasmid purification and identification of cDNA and its assembly in the plasmid pEP121 resulting in plasmid pCLB89 have been described in patent application EP 0253455. The Factor VIII polypetides of the invention application mutant proteins of Factor VIII in which the central include delation mutant proteins of Factor VIII in which the central region or "B domain" as well as a portion of the 92 kD region has been region or "B domain" as well as a portion of the 92 kD region has been
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  proteins having Factor VIII activity \dot{}^{\rm T} comprising deletion mutant proteins of Factor VIII in which central region has been deleted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  van Ooyen AJJ, Pannekoek H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (KONN ) GIST-BROCADES NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-JUN-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAP80659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1988-355361/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example; Fig 1; 37pp; English.
                                                                                                                                                                                                                                                                                                          deleted. The polypeptides have enhanced Factor VIII activity and/or decreased immunogenicity and can be used for the treatment of Haemophilia A. They can also be used to prepare antibodies. The Abscan be used to determine the concn. of Factor VIII in a body fluid.
                                                                                                                                                                                                                                                Sequence 8241 BP; 2625 A; 1759 C; 1703 G; 2154 T; 0 other;
426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgtggacctggtaaaagacttgaattcaggcctca 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  on plasmid pcīB89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88EP-0201209.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87EP-0201121.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88EP-0201209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product=Signal peptide 64..7062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                     57.5%; Score 575; DB 9; L
100.0%; Pred. No. 2.4e-155;
                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Verbeet MP,
                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         van Leen RW;
                                                                                                                                                                           Length 8241;
                                                                                                                              0;
                                                                                                                                 Gaps
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                      QУ
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                     B
                                                                                                                                                                                                                                    QY
                                                                                                                                                                 Qy
                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                        666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                           606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 185
                                                                                                                                                                                                                                                                                                                                                                                                           186 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 245
                                                                                                                                                                                                                                                                     306 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 365
                                                                                                                                                                                                                                                                                        726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                     486
                                                                                                                                       426
                                                                                                                                                                      846
                                                                                                                                                                                                   366 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 425
                                                                                                                                                                                                                    786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 125
546 tgtggacctggtaaaagacttgaattcaggcctca 580
                  966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 65
                                                                                                                                                                                                                                                                                                                                         cyctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 305
                                                                 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 545
                                                                                                                                   ggagaaagaagatgataaagtottocotggtggaagcoatacatatgtotggcaggtoot 485
                                                                                                                                                  gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
```

Search completed: January 17, 2002, 16:32:59 Job time: 12484 sec

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                  Result
                                                                                                                                                                                                                                                                                                                         ŏ
8
9
10
11
11
12
13
13
14
15
16
16
17
17
17
17
17
22
22
23
23
24
24
26
27
27
                                                                                                                                                                                                                                                                                                                                                                               and is derived by analysis of the total score distribution
                                                                                573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
573.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq length: 0
seq length: 2000000000
                                             444.2
                                                                                                                                                                                                                                                                                                                                                                                            No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      January 17, 2002, 13:01:30; Search time 118.22 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                         Issued_Patents_NA:*

1: /cgn2_6/ptodata/2/ina/5A_COMB.seq:*

2: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*

3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/2/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/2/ina/6B_COMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            351203 seqs, 113238999 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 cagctgcgcgctcgctcgct.....agacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-740-211-13_COPY_1_1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                             Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                       Query
                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/2/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                         11933
                          08
   US-08-251-937A-3
US-08-212-133A-1
US-08-474-503-1
US-08-670-707A-1
US-08-670-707A-1
US-08-670-707A-1
US-09-037-601-1
PCT-US94-13200-1
US-08-121-202-1
US-08-484-891-7
US-08-883-839B-2
US-08-276-594A-1
US-08-374-807-707A-5
US-08-474-503-5
US-08-670-707A-5
                                                                                                                                                                                                   US-09-243-539-1
5171844-1
US-08-366-851A-1
US-07-864-004B-3
                                                                                                                                                                                                                                                         US-09-470-618-13
US-09-364-862-13
US-09-470-618-14
US-09-364-862-14
US-09-364-862-14
                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (without alignments)
1915.733 Million cell updates/sec
                                                                                                                                                                      Sequence 14, Appl
Sequence 17, Appli
Sequence 1, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
                                                                                                                                                                                                                                                                                                                                     Description
                                                                                                                                                                                                                                                                                                   Sequence 13,
Sequence 13,
                                                                                                                                                 Sequence
Sequence
                                                                   Sequence
Sequence
                                 Sequence
Sequence
                                                                                                     Sequence
                                                                                                                  Sequence
                                                                                                                            Sequence
                                                                                                                                        Sequence
                                                                                           Sequence
                                                         Sequence
            Sequence
                       Sequence
                       1, Appli
3, Appli
1, Appli
1, Appli
7, Appli
2, Appli
41, Appli
1, Appli
1, Appli
1, Appli
1, Appli
5, Appli
5, Appli
```

```
; Sequence 13, Application US/09470618 ; Patent No. 6200560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Couto, Linda B.
APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-470-618-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C
                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/470,618
CURRENT FILING DATE: 1999-12-22
CURRENT FILING DATE: 1999-12-30
EARLIER APPLICATION NUMBER: 09/364,862
EARLIER FILING DATE: 1999-07-30
EARLIER FILING DATE: 1999-03-24
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER FILING DATE: 1998-10-20
NUMBER OF SEQ ID NOS: 15
                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: Description of Artificial Sequence: US-09-470-618-13
                                                                                                       Qy
                                                                                                                                  В
                                                                                                                                                          QΥ
                                                                                                                                                                                     밁
                                                                                                                                                                                                            QY
                                                                              멍
                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Adeno-Associated Vectors for Expression of Factor VIII TITLE OF INVENTION: by Target Cells FILE REFERENCE: Avigen-04082
                                                                                                                                                                                                                                          Matches 1000;
                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                TYPE: DNA ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        142.6
142.6
142.6
142.6
133
133
133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         443
413.8
413.8
413.8
413.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413.8
413.8
296.2
144
144
                                                                                          121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                        181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt
                                                                              121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt
241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgcccct 300
                         181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt
                                                                                                                                               61 tttggtcgcccggcctcagtgagcgagcgagcgcgcgcagagaggggagtggccaactccatc 120
                                                                                                                                  61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagaggggagtggccaactccatc 120
                                                                                                                                                                                                  1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc 60
                                                                                                                                                                                     1 cagctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcggcgacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \frac{41.4}{29.6}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.3
14.3
14.3
13.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14.4
                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      144
4999
4999
11933
11933
8299
8299
8299
8299
8299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4451
144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6402
                                                                                                                                                                                                                                                         100.0%; Score 1000; DB 4; 100.0%; Pred. No. 5.2e-308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT-US94-13200-5
US-08-670-707A-38
US-09-037-601-38
US-09-670-707A-36
US-08-670-707A-36
US-09-470-618-9
US-09-470-618-14
US-09-364-862-14
US-09-364-862-13
US-08-462-014-2
US-08-973-334-5
                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                Length 11933;
                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 9, Appli
Sequence 14, Appl
Sequence 13, Appl
Sequence 13, Appl
Sequence 2, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 5, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 42,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5, Appli
38, Appl
38, Appl
38, Appl
36, Appl
36, Appl
42, Appl
42, Appl
                                               240
```

0;

δõ

```
US-09-364-862-13
     NUMBER OF SEQ ID NOS: 14
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 13
                               APPLICANT: COLOSI, Peter C.
TITLE OF INVENTION: BADENO-ASSOCIATED VECTORS FOR EXPRESSION OF FACTOR VIII
TITLE OF INVENTION: BY TARGET
TITLE OF INVENTION: CELLS
FILE REFERENCE: AVIGEN-03743
CURRENT APPLICATION NUMBER: US/09/364,862
CURRENT FILING DATE: 1999-07-30
EARLIER APPLICATION NUMBER: 60/125,974
EARLIER APPLICATION NUMBER: 60/125,974
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER APPLICATION NUMBER: 60/104,994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                    Sequence 13, Application US/09364862 Patent No. 6221349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                       961 tctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                          961 totcatytyggacotygtaaaagacttyaattcaggootca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                 901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661 aacatogotaagocaaggocaccotggatgggtotgotaggtootaccatcoaggotgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541 gatcteggtgagctgcctgtggaegcaagatttectcctagagtgccaaaatcttttcca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 tgcgtgccttgaattactgacactgacattccactttttctttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 tgcgtgccttgaattactgacactgacatccactttttctttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tecaccatgeaaatagagetetecacetgettetttetgtgeettttgegattetgettt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
```

В δÃ

```
QΥ
                                                                                                                                             멍
                                                                                                                                                                                                             В
                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-364-862-13
901 gtoctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                  Matches 1000;
                                                 841 caaagggagaaagaagatgataaagtetteeetggtggaageeatacatatgtetggeag 900
                                                                                                                   781 gotgttggtgtatcotactggaaagcttotgagggagotgaatatgatgatcagaccagt 840
                                                                                                                                    781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                      661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                          601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                              541 gateteggtgagetgeetgtggaegeaagattteeteetagagtgeeaaaatetttteea
                                                                                                                                                                                                                                                                                                                           601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                          541 gatotoggtgagotgootgtgggaogoaagatttootootagagtgooaaaatottttooa
                                                                                                                                                                                                                                                                                                                                                                                                                                                            481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421 tocaccatgcaaatagagctetccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 tgcgtgccttgaattactgacactgacatccactttttctttttctcccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 aaagaagtatattagagogagtotttotgoacacagatcacotttoogggtgoogcooot 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                     gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                        9tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                          aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Watch 100.0%; Score 1000; DB 4; Local Similarity 100.0%; Pred. No. 5.2e-308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 cagctgcgcgctcgctcactgaggccgcccgggcaaagcccgggcgtcggggcgacc 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 cagetgegetegetegeteaetgaggeegeeegggeaaageeegggegtegggegaee 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgcgtgccttgaattactgacactgacatccactttttctttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
US-09-470-618-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-470-618-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 14, Appl
Patent No. 620056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Adeno-Associated Vectors for Expression of Factor VIII
TITLE OF INVENTION: by Target Cells
FILE REFERENCE: Avigen-04082
CURRENT ELLING DATE: 1999-12-22
EARLIER APPLICATION NUMBER: US/09/470,618
CURRENT FILING DATE: 1999-07-30
EARLIER FILING DATE: 1999-07-30
                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                       Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLIER APPLICATION NUMBER: 60/125,974
EARLIER FILING DATE: 1999-03-24
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER FILING DATE: 1998-10-20
NUMBER OF SEQ ID NOS: 15
                                                                                                                       δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 14
                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
 ρ
                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: Description of Artificial Sequence: Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961 totcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH: 4999
                                                                                                                                                                                                                                                                                                                                                            121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                           133 actaggggttcctgcggccgcacgcgtggtggcgcgggggtaaa-----ctgggaaagt 185
                                                                                                                                                                                                                    243 gcagtagtcgccgtgaacgttctttttcgcaacgggtt------tgccgccccg 290
                                                                                                                                                                                                                                               241 aaagaagtatattagagcgagtotttotgcacacagatoacotttocgggtgocgcccct 300
                                                                                                                                                                                                                                                                               186 gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                         61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                              301 aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacggggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                          73 tttggtcgcccggcctcagtgagcgagcgagcgcagagagggagtggccaactccatc 132
                                                                                                                                                       291 cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
                                                                                                                            361
481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        859;
                                                                                          PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72.5%; score 725.2;
85.9%; pred. No. le-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 118; Indels 23; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1e-220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4; Length 4999;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-364-862-14
                                                                                                                                                                   US-09-364-862-14
QΥ
                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 14, Application US/09364862 Patent No. 6221349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                            SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: ADENO-ASSOCIATED VECTORS FOR EXPRESSION OF FACTOR VIII TITLE OF INVENTION: BY TARGET TITLE OF INVENTION: CELLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/364,862
CURRENT FILING DATE: 1999-07-30
EARLIER APPLICATION NUMBER: 60/125,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541 gatctcggtgagctgctgtggacgcaagatttcctcctagagtgccaaaatcttttcca 600
                                                                                          Matches 859; Conservative
                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                        EARLIER FILING DATE: 1998-10-20 NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                                                                                                     EARLIER APPLICATION NUMBER: 60/104,994
                                                                                                                                                                                                                                                                                                                                  EARLIER FILING DATE: 1999-03-24
                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: AVIGEN-03743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             590 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttc 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                650 aacatcyctaayccaagyccaccctygatgygtctyctagytcctaccatccayyctyag 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   770 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 829
                                                                                                                                                                                OTHER INFORMATION: Description of Artificial Sequence:
                                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                LENGTH: 4999
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttaccctactcatatctt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961 totoatgtggacctggtaaaagacttgaattoaggcotca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        890 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             950 tctcatgtggacctggtaaaagacttgaattcaggcctca 989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gateteggtgagetgeetgtggaegeaagattteeteetagagtgeeaaaatetttteea 589
                                                                                                       Y Match 72.5%;
Local Similarity 85.9%;
                               13 cagctgcgcgctcgctcactgaggccgccgggcaaagcccgggcgtcgggcgacc 72
 61 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatc 120
                                            1 cagctgcgcgctcgctcactgaggccgcccggggcaaagcccgggcgtcggcgacc 60
                                                                                                   0; Mismatches
                                                                                                                 Score 725.2; DB 4; Length 4999; pred. No. 1e-220;
                                                                                                        118; Indels 23; Gaps
```

4.

```
Sequence 1, Application US/08882083
Patent No. 5869292
                                                                                                            US-08-882-083-1
                                                                                                                                RESULT
                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                    GENERAL INFORMATION:
APPLICANT: VOORBERG, Johannes J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
CORRESPONDENCE ADDRESS:
              NUMBER OF SEQUENCES: 17
                               TITLE OF INVENTION:
                                                                                                                                                         950 totcatgtggacctggtaaaagacttgaattcaggcctca 989
                                                                                                                                                                         961 teteatytygacetygtaaaagaettyaatteagycetea 1000
                                                                                                                                                                                                              890 gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                                                                                                             901 gtcctgaaaggaatggtccaatggcctctgacccactgtgccttacctactcatatctt 960
                                                                                                                                                                                                                                                                                       830 caaagggagaaagaagatgataaagtottoootggtggaagooatacatatgtotggoag 889
                                                                                                                                                                                                                                                                                                                                   770 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 829
                                                                                                                                                                                                                                                                                                                                                   781 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt 840
                                                                                                                                                                                                                                                                                                                                                                                              710 gittatgatacagiggicaliacactiaagaacatggcitcccatccigicagicitcai 769
                                                                                                                                                                                                                                                                                                                                                                                                             721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                          650 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      590 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 470 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481 agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       410 tocaccatgoaaatagagototocacotgottotttotgtgcottttgcgattotgottt 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361 tgcgtgccttgaattactgacactgacattccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             291 cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301 aggcaggtaagtgccgtgtgtggtttcccgcggggcctggcctctttacgggttatggccct 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           243 gcagtagtcgccgtgaacgttctttttcgcaacgggtt------tgccgccccg 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 aaagaagtatattagagcgagtcittctgcacacagatcacctttccgggtgccgcccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186 gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 actaggggttcctgcggcgcgcacgcgtggtggcgcggggtaaa-----ctgggaaagt 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tettaaataceatetaetgaeactgaeatecaetttttettttteteeaeaggtatega- 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttggtcgcccggcctcagtgagcgagcgagcgcgcagaggggagtggccaactccatc 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            тінгінштінштинштинштиншт
```

В Qy

```
DЬ
                                                                                                          γΩ
                                                                                                                                         В
                                                                                                                                                                  Qy
                                                                                                                                                                                                밁
                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                               Дδ
                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-882-083-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 578; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
              INFORMATION FOR SEQ ID NO: 1:
                                                      390 CTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATGATCAGACCAGTC 449
                                                                       782 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                  330 TTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATG
                                                                                                                                722 tttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg 781
                                                                                                                                                                                       662 acatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgagg 721
                                                                                                                                                                         270 ACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGG 329
                                                                                                                                                                                                                                                 602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttca 661
                                                                                                                                                                                                                                                                                                       542 atotoggtgagotgootgtggacgcaagatttootootagagtgocaaaatottttooat 601
                                                                                                                                                                                                                               210 TCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCA 269
                                                                                                                                                                                                                                                                                         150 ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTTCCTAGAGTGCCAAAATCTTTTCCAT 209
                                                                                                                                                                                                                                                                                                                                                                482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                        422 ccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttta 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 13-NOV-1995
ATTORNEY/AGENT INFORMATION:
NAME: ISACSON, John P.
                                                                                                                                                                                                                                                                                                                                                  90 GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                        30 CCACCATGGAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCCTTTTGCGATTCTGCTTTA 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 514
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (202)672-5399
TELEX: 904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: ISACSON, John P. REGISTRATION NUMBER: 33 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE:
COMPUTER: IF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
STREET: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
EDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5035 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
35..5017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Foley & Lardner
3000 K Street, N.W., Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57.7%; Score 577.4; DB 2; Length 5035; 99.8%; Pred. No. 1.2e-173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US 08/558,107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               33,715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/882,083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

```
; NAME/KEY:
; LOCATION:
US-08-558-107-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-558-107-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                      20
                                                                                                                                              В
                                                                    δã
                                                                                               망
                    Q
                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/08558107 Patent No. 5910481
밁
                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                               Matches 578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300 TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 5035 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 1-136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 3000 K St
CITY: Washington
                                                                                                                                             COUNTRY:
                                                                                                             482 gtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
 210
                        602
                                                150
                                                                       542
                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: ISACSON, John P. REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP:
                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                            Local Similarity
                                                                                                90
ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCAT 209
                                                            atctoggtgagctgcctgtggacgcaagatttccttcctagagtgccaaaatcttttccat 601
                                                                                               GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3000 K Street, N.W., Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VOORBERG,
                                                                                                                                                                                                                                                                                                                                               5035 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Foley & Lardner
                                                                                                                                                                                                                                                                       35..5017
                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-NOV-1995
N: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                                                                                            57.7%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Johannes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             us/08/558,107
                                                                                                                                                                                                                                                                                                                                                                                                                                              33,715
                                                                                                                                                                                                                                                                                                                                                                                                                                      30472/212
                                                                                                                                                                                                 0;
                                                                                                                                                                                                            Score 577.4; DB 2; Pred. No. 1.2e-173;
                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                          Length 5035;
                                                                                                                                                                                                    Indels
                                                                                                                                                                                                     0;
                                                                                                                                                                                                     Gaps
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Sequence 1, Application US/09243539 ; Patent No. 6130203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-243-539-1
US-09-243-539-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                      TELEFAX: (202)672-5399
TELEX: 904136
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED ACTIVITY NUMBER OF SEQUENCES: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 13-NOV-1995
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                782 ctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtc 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             330 TTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               722 tttatgataczgtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatg
                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 30 TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            570 CTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       902 tcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcattatcttt 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     390 CTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTC 449
                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Washington STATE: D.C.
              NAME/KEY:
                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                               NAME: ISACSON, John P. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                              TOPOLOGY:
                                                                            STRANDEDNESS:
                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCTGARAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20007-5109
                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VOORBERG,
                                                                                                           5035 base pairs
                                                                                                                                                                    (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                      PatentIn Release #1.0, Version #1.30
                                 CDS
                                                               linear
                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Johannes J.
                                                                                                                                                                                                                                                                                              US 08/558,107
                                                                                                                                                                                                                                                                                                                                                            US/09/243,539
                                                                                                                                                                                                                                 33,715
                                                                                                                                                                                                                    30472/212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     329
```

```
RESULT 1
5171844-1
                                                                                                                                                                                                                  5171844-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                          APPLICANT: VAN OOYEN, ALBERT J.J.; PANNEKOEK, HANS; VERBEET, MARTINUS P.; VAN LEEN, ROBERT W.
TITLE OF INVENTION: PROTEINS WITH FACTOR VIII ACTIVITY; PROCESS FOR THEIR PREPARATION USING GENETICALLY-ENGINEERED CELLS; AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM
NUMBER OF SEQUENCES: 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                             SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                ; Patent No. 5171844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÔ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                       Matches
                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                             426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
66 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    570 CTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      962 ctcatgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          510
                                                             6 catgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgc 65
                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                               LENGTH: 8241
                                                                                                                                                                                                                                                          FILING DATE: 10-JUN-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             722 tttatgatacagtggtcattacacttaagaacattggcttcccatcctgtcagtcttcatg
                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         270 ACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          662 acatcyctaagocaaggocacoctggatgggtctgctaggtcctaccatccaggctgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   210 TCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602 tcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacgggatcaccttttca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150 ATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCAT 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542 atctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatctttttccat 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   482 gtgccaccágaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtg 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                teetgaaagagaatggteeaatggeetetgaeeeactgtgeettaeetaeteatatettt 961
                                                                                                                                      575;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTC 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ct9tt99t9tatcctact99aaa9cttct9a999agct9aatat9at9atca9acca9tc 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTG 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        578;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                      57.5%; Score 575; DB 6; Length 8241; 100.0%; Pred. No. 9.2e-173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57.7%; Score 577.4; DB 3; Length 5035; 99.8%; Pred. No. 1.2e-173;
                                                                                                                                                                                                                                                                       US/07/205,226
                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                               Mismatches
                                                                                                                              0;
                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      269
                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ž
```

ρ 밁

8

В

```
REGISTRATION NUMBER: 34,561
REFERENCE/DOCKET NUMBER: 9300
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619) 452-1288
TELEFAX: (619) 452-2616
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-366-851A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence 1, Application US/08366851A Patent No. 5681746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                 CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: De Polo, Nicolas J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Chang, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
LENGTH: 850,
TYDE: nucleic acid
both
                                                                                                                                                                                     NAME:
                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               546 tgtggacctggtaaaagacttgaattcaggcctca 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    486 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     786
                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246 ogctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             186 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                  92121
                                                                                                                                                                                 Chambers, Daniel M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   San Diego
                                 8967 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11055 Roselle Street
                                                                                                                                                                                                                                                                                                                                                                                                                U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hsu, David Chi-Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bodner, Mordechai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Viagene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Retroviral Delivery of Full Length Factor VIII
                                                                                                                                                                                                                                                              US/08/366,851A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Inc
                                                                                                                                               930049.438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
```

TOPOLOGY:

unknown

```
US-07-864-004B-3
                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-366-851A-1
                                                                                                                                                                                                                                            Sequence 3, Application US/07864004B Patent No. 5364771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 575;
                                                                                                                                                                                                                                 GENERAL INFORMATION:
ZIP: 30309
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatii
OPERATING SYSTEM: PC-DOS,
                                                                                                                                                     CORRESPONDENCE ADDRESS
                                                                                                                                                                     TITLE OF INVENTION: NUMBER OF SEQUENCES:
                                                                                                                                                                                                APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: FEATURE:
                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                    966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                               906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          846
                                                                                                                                                                                                                                                                                                                                                                                                 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                             529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109
                                                                                         ADDRESSEE: Kilpatrick & Cody
STREET: 1100 Peachtree Street
CITY: Atlanta
STATE: Georgia
                                                                COUNTRY: US
ZIP: 30309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                    TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                              gaaagagaatggtccaatggcctctgacccactgttgccttacctactcatatctttctca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgatacagtggtcattacacttaagaacattggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             catgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT
                                                                                                                                                                                                                                                                                                                                                                                              GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACAT 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
110..7165
    PC-DOS/MS-DOS
                                                                                                                                                                                 Hybrid Human/Porcine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57.5%; Score 575; DB 1; L
100.0%; Pred. No. 9.6e-173;
htive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                     683
                                                                                                                                                                                   Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                              648
                                                                                                                                                                                                                                                                                                                                                                                                                           965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   528
```

```
δÃ
                                                                         В
                                                                                                           δÃ
                                                                                                                                                     B
                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                               Q_{\underline{Y}}
                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                    Оy
                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-07-864-004B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 574; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: cDNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO:
                                     846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                  546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                              270 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          210 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature (Domain Structure)
LOCATION: 1 . . . 277
OTHER INFORMATION: /note= "Equivalent to the
OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature (Domain Structure) LOCATION: 5001 . . . 7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,284
REFERENCE/DOCKET NUMBER: EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/07/
FILING DATE: 07 APRIL 1992
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH:
                                                                                                                                                                                                                         cgctaagccaaggccacctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                 tgatacagtggtcattacactttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                         cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat
TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG
                                                                                           tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGT
                                                                                                                                                                                                                                                                                                     CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                57.3%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "Equivalent to the A3-C1-C2 domain" \ensuremath{\text{C}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/07/864,004B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 573.4; DB 1; Pred. No. 3.1e-172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A1-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

569

389 665 329 269

209

0,:

```
QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-251-937A-3
                                                                US-08-251-937A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3, Application US/08251937A Patent No. 5583209
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: EM TELECOMMUNICATION INFORMATION: TELEPHONE: 404-815-6367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Pratt, John S.
REGISTRATION NUMBER: 29,476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Porcine Factor VIII
NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                             MOLECULE
HYPOTHETICAL: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 31-MAY-CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                ANTI-SENSE: NO
FRAGMENT TYPE: N-termina
ORIGINAL SOURCE:
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      690 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                              NAME/KEY: misc_feature (Domain Structure)
LOCATION: 5001 . . . 7053
OTHER INFORMATION: /note= "Equivalent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 1100 | CITY: Atlanta
                                                                               STATE:
                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                                TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Georgia
Y: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1100 Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                                 9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    404-815-6555
                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                 N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UMBER: US/08/251,937A
31-MAY-1994
                                                                                                                                                                                                                                                                                                                                                   CDNA
 57.3%;
                                                                               /note= "Equivalent to the Al-A2
domain"
                                                                                                                                                               domain"
                                                                                                                                                                                /note= "Equivalent to the A3-C1-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMU106DIV
 Score 573.4; DB 1; Pred. No. 3.1e-172;
                   Length 9009;
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-212-133A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 574; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/08212133A Patent No. 5663060
                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                           ZIP: 30303
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                       APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Animal Factor VIII
NUMBER OF SEQUENCES: 12
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486 caccagaagatactacctgggtgcagtggaactgtcatggggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     270 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA
                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  690 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 630 GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: Ma
                                                                                               APPLICATION NUMBER: US/08/2
FILING DATE: March 11, 1994
                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                            STATE:
                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgctaagccaaggccacctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgatacagtggtcattacacttaagaacatggcttccccatcctgtcagtcttcatgctgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                        SSEE: Kilpatrick & Cody
T: 100 Peachtree Street
Atlanta
                                                                                                                                                                                                                            30303
                                                                                                                                                                                                                                                          Georgia
                                                                                                                                                                                                                                             S
                                                                                                                 US/08/212,133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      629
```

REGISTRATION NUMBER: 31,284
REFERENCE/DOCKET NUMBER: EMI
TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-572-6508

EMU/76677

```
US-08-212-133A-1
                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                               Дb
                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                               В
                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 404-572-6555
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                      QΥ
                                                                                                망
                                                                                                                      20
                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature (Domain Structure)
LOCATION: 5125 . 7053
OTHER INFORMATION: /note= "Equivalent to 1
OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                             486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: 1.2277
OTHER INFORMATION: /note- "cDNA encoding human factor OTHER INFORMATION: VIII."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                              546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                               210 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature (Domain Structure) LOCATION: 1 . . . 2277
                                                                                                                                                                                                                                                                                               270 CGGTGAGCTGCCTGTGGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 57.3%; Local Similarity 99.8%;
                                                                                                                                                                                                             666 cgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                 390 CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 449
510 TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG 569
                                                                                                              786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                 574; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "Equivalent to the A3-C1-C2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "Equivalent to the A1-A2 domain."
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 573.4; DB 1; Pred. No. 3.1e-172; 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1; Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Gaps
```

```
RESULT 13
US-08-474-503-1
                                                                                                         OTHER INFORMATION: VOTHER INFORMATION: VOTHER INFORMATION: VOTHER INFORMATION: VOTHER 108-08-474-503-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/08474503
Patent No. 5744446
GENERAL INFORMATION:
  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Emory University
TITLE OF INVENTION: Hybrid Human/Animal Factor VIII
NUMBER OF SEQUENCES: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                      Matches 574; Conservative
                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                   Query Match
Best Local Similarity 99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
NAME: PETALL, JOHN S.
REGISTRATION NUMBER: 29,476
REGISTRATION NUMBER: EMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE:
STRANDEDNESS:
                                                                                                                                                                                                                                                         LUCATION: 5125 . . . /053
OTHER INFORMATION: /note= "Equivalent to the A3-C1-C2
OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature (Domain Structure)
LOCATION: 5125 . 7053
                                                                                                                                                                                                                                                                                                                             TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                         OTHER INFORMATION:
                                                                                                                                                                                                                     NAME/KEY: misc_feature (Domain Structure) LOCATION: 1 2277
                                                                                                                                                                NAME/KEY: Domain
LOCATION: 1..227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Atlanta
: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30309
                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1100 Peachtree Street, Suite 2800
                                                                                                                                                                                                                                                                                                                                                          SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                                                           NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         404-815-6500
                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                             Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                      NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/474,503
                                                                                                                                           /note= "cDNA encoding human factor VIII."
                                                                                                                                                                                                             /note= "Equivalent to the A1-A2 domain."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMU106CIP(3)
                                                                0;
                                                                            Score 573.4; DB 1;
pred. No. 3.1e-172;
                                                                Mismatches
                                                                                               Length 9009;
                                                                        Indels
                                                                          0,
                                                                            Gaps
```

```
US-08-670-707A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/08670707A Patent No. 5859204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0:
FILING DATE: 07-APR-1992
                                                               PRIOR APPLICATION DATA.
APPLICATION NUMBER: US 08/212,133
FILING DATE: 11-MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
             ATTORNEY/AGENT INFORMATION:
                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US94/13200
FILING DATE: 15.NOV-1994
                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Lollar, John S.
TITLE OF INVENTION: Hybrid Human/Animal Factor VIII
                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 26-JUCCLASSIFICATION: 43
                                                                                                                                                                                                                    COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      690 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                      MEDIUM TYPE:
                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  630 GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             510 TGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAG 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   450 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGT 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACAT 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      270 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
Greenlee, Lorance L.
                                                                                                                                                                                                                                                                                   80303
                                                                                                                                                                                                                                                                                                                         Boulder
                                                                                                                                                                                                                                                                                                      Colorado
                                                                                                                                                                                                                                                                                                                        5370 Manhattan Circle Suite 201
                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                    Greenlee, Winner and Sullivan, P.C
                                                                                                                                                                  26-JUN-1996
                                                                                                                                                                                                                                                  Floppy disk
                                      US 07/864,004
                                                                                                                                                                          US/08/670,707A
```

```
γ
                                                                                                                                          Ъ
                                                                                                                                                                                                         Б
                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-670-707A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 99.8%;
Matches 574; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
906 gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca
                                                                   510 TGGTGTATCCTACTGGAAAGCTTCTGAGGGGAGCTGAATATGATGATCAGACCAGTCAAAG 569
                                                                                                                                  786 tggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaag 845
                                                                                                                                                                               450 TGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGT 509
                                                                                                                                                                                                726 tgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgt 785
                                                                                                                                                                                                                                             390 CGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTA 449
                                                                                                                                                                                                                                                              666 cyctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggttta 725
                                                                                                                                                                                                                                                                                                                             606 cacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                                                                                            330 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACAT 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                      486 caccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatct 545
                                                                                                                                                                                                                                                                                                                                                                          270 CGGTGAGCTGCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA 329
                                                                                                                                                                                                                                                                                                                                                                                          546 cggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                     210 CACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCT 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150 CATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGC 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426 catgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgc 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: CE
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 1..2277
OTHER INFORMATION: /product= "Domain"
OTHER INFORMATION: /note= "cDNA encoding human factorVIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 27,894
REFERENCE/DOCKET NUMBER: 75.
TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/499-8080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature LOCATION: 1..2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: 1..2277
OTHER INFORMATION: /pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature LOCATION: 5125.7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: double TOPOLOGY: not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303/499-8089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cDNA to mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "Equivalent to the Al-A2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product= "Domain Structure"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note= "Equivalent to the A3-C1-C2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= "Domain Structure"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 573.4; DB 2; Length 9009; Pred. No. 3.1e-172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

0;

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-037-601-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09037601 Patent No. 6180371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 303/499-8089
NPORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 08/212,133
FILING DATE: 11-MAR-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: WO PILING DATE: 15-NOV-1994 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 75
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         966 tgtggacctggtaaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                     ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                      HYPOTHETICAL: I
                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      690 TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA 724
                                                     FEATURE:
                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 26-JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Boulder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                         OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Ferber, Donna M.
REGISTRATION NUMBER:
                                                                                   NAME/KEY: misc_feature LOCATION: 1..2277
OTHER INFORMATION: /pro
                                                                                                                                                                                           NAME/KEY: misc_feature LOCATION: 5125..7053
                                                                                                                                                                                                                                                   ORGANISM: HC
TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE:
                                                                    OTHER INFORMATION:
 OTHER INFORMATION:
               NAME/KEY: misc_feature LOCATION: 1..2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAAGAGAATGGTCCAATGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCA 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5370 Manhattan Circle Suite 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lollar, John S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     303/499-8089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                         not relevant
                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Greenlee, Winner and Sullivan, P.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          303/499-8080
                                                                                                                                                                                                                                                                                                                             NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-JUN-1996
                                                                                                                                                                                                                                                    Liver
                                                                                                                                                                                                                                                                                                                                          cDNA to mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hybrid Human/Animal Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40
/product= "Domain"
                                                                    /product= "Domain Structure"
/note= "Equivalent to the Al
                                                                                                                                                             /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO PCT/US94/13200
                                                                                                                                                                              /product= "Domain Structure"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    us/09/037,601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33,878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75-95F
                                                                      "Equivalent to the A1-A2 domain"
                                                                                                                                                         "Equivalent to the A3-C1-C2 domain"
```

```
, OTHER INFORMATION: /note= "cDNA encoding human factorVIII" US-09-037-601-1
                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                        멍
                                                                                                                                                                                       δÃ
                                                                                                                                                                                                         DЬ
                                                                                                                    QΥ
                                                                                                                                      В
                                                                                                                                                      Qy
                                                 δÃ
                                                                  멍
                                                                                  δõ
                                                                                                     Вp
                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                  Matches 574;
                                                                                                                                                                                                                                                                                                             330 CACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACAT
                                                                                                                                                                                                                  606 cacctcagtcgtgtacaaaaaagactctgtttgtagaattcacggatcaccttttcaacat 665
                                                                                                                                                                                                                                           270 CGGTGAGCTGCCTGTGGACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAA
                                                                                                                                                                                                                                                   546 cggtgagctgcctgtgggacgcaagatttcctcctagagtgccaaaatcttttccattcaa 605
                                                                  Local Similarity
         gaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctttctca 965
                                                                           TGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCA
                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                          57.3%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                           Score 573.4; DB 4; Pred. No. 3.1e-172;
                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                   Length 9009;
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                          845
                                                                                                                                                                             449
                                                                                                                                                                                                              389
```

Search completed: January 17, 2002, 16:26:40 Job time: 12310 sec

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
EST:*

1: em_
2: em_
4: em
5: em
6: em
7: em
8: em
9: em
110: (
111: (
112: (
113: (
114: (
115: (
116: (
117: (
118: (
119: (
20: (
21: (
20: (
21: (
20: (
21: (
20: (
21: (
20: (
21: (
20: (
21: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
20: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                January 17, 2002, 12:34:39; Search time 3755.78 Seconds (without alignments) 2861.131 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-740-211-13_COPY_1_1000
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11351937 seqs, 5372889281 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cagctgcgcgctcgctcgct.....agacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_estov:*
em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_estom:*
em_estp1:*
em_estba:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_estfun: *
em_esthum: *
                                     em_gss_pro:*
em_gss_rod:*
em_gss_vrt:*
                                                                                                                                                    em_gss_fun:*
em_gss_hum:*
em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                             gb_est1:*
gb_est2:*
gb_htc:*
gb_gss:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_estin: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_estro:*
em_gss_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22703874
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

12	c 11	10	9	80	7	6	5	4	ω	c 2	1	Result No.
91.2	91.2	92	92.4	92.4	92.4	92.4	92.4	92.4	92.6	95	315	Score
9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.3	9.5	31.5	Query Match I
816	521	1006	3739	878	783	658	625	477	669	456	954	Length DB
I	10	10	12	11	11	1	10	10	11	10	11	DB .
AL556/03	AA865338	AI225600	AK014835	BE912296	BG977142	BG923886	AI526753	AA461838	BF150467	AA817854	BG477974	ID
AL356/03 AL336/03	AA865338 og88d10.s	AI225600 uj06c05.y		-		-	AI526753 uj42e03.y	AA461838 vf95d04.r			BG477974 602522966	Description

o	
44444 5444 5444 5444	114 115 116 117 117 117 117 117 117 117 117 117
85 83.4 83.4 83 82.6 81.8 81.8 81.8 81.8 81.9 79.8	0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	888888888888888899 555555557777777777777
670 889 695 839 839 509 1002 1002 1002 1453 643 6443	632 634 4736 4736 576 657 667 667 667 6691 796 837 732 732 732 732 732 732
111111111111111111111111111111111111111	110 110 110 110 110 111 111 111 111 111
BE29/6890 BE286923 AA873581 B1107719 BE371524 BF604025 AW779866 BE348439 BF732535 BF122699 BF158434 BF122699	BG862595 AV653260 BF144665 BF13891 BE308999 BE314540 BG914512 BG916672 BG916672 BG916672 BG916672 BG916672 BG916672 BG916672
3581 3581 7719 7719 8440 9866 9863 5253 554 569 864 3434	BG862595 602795978 AV653260 AV653260 BF144665 601791527 BF138391 601785242 BE308999 601097096 AI195667 ut52c06 y BE914540 60165638 BG914542 602845326 BF285283 601098271 BG975622 602844704 BF383799 602044704 BE917370 601666274 BF144018 601791274 BE283339 601102255 BF136574 60179622 BG568672 60258766314 BG172588 602337001 AI265337 uk011h06.51

ALIGNMENTS

sour ce	FEATURES		REFERENCE AUTHORS TITLE JOURNAL COMMENT	KEYWORDS SOURCE ORGANISM	RESULT 1 BG477974 LOCUS DEFINITION ACCESSION VERSION
/organism="Homo sapiens" /organism="Homo sapiens" /ab_xref="taxon:9606" /clone="IMAGE:4641352" /clone_lib="NIH_MGC_20" /tissue_type="melanotic melanoma" /lab_host="DH10B (phage-resistant)"	http://image.llnl.gov plate: LLCM1408 row: c column: 17 High quality sequence stop: 626. Lccation/Qualifiers 1 954	Email: cgapbs-remail.nin.gov Tissue Procurement: AFCC/DCTD/DTP CDNA Library Preparation: Ling Hong/Rubin Laboratory CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can be	l (bases 1 to 934) NIH-MGC http://mgc.nci.nih.gov/. National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished (1999) Contact: Robert Strausberg, Ph.D.	EST. human. Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	BG477974 954 bp mRNA EST 21-MAR-2001 602522966F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4641352 5', mRNA sequence. BG477974 BG477974 GI:13410253

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 2
AA817854/c
                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                 TITLE
                                                                                                 MEDLINE
                                                                                                                       JOURNAL
                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528 TGCCATTACCTACTCATATCTTTCTCATGTGGACCTGGCTACAAGACTTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   940 -tgccttacctactcatatctttctcatgtggacctgg-taaaagacttgaat 990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    885 tacat-atgtctggcaggtcctg---aaagagaatggtccaatggcctctgacccactg- 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     408 TGATCAGACCAGTCAAACGGGAGAACAGAAGATGATACAAGTCTTCCCTGGTGGAAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            530 atatgcaaagtgatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaa 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108 AGATGCACCGAGATGCGCGTGCGCAGAAAGCGTCCCGGGGATTTCCTCCTAGAGTGCCAA 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACCTCATGTCTGGCAGGTCCTGCAAAGAGACATGGTCCACCTGGCCTCTGACCCACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atcaccttttcaacatcgctaagccaaggccaccctggatgggtctgctaggtcctacca 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | tgatcagaccagtcaaa--gggagaaagaagatgata-aagtcttccctggtggaagcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacgg 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tocaggotgaggtttatgatacagtggtcattacacttaagaacatggcttcccatcctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGG
                 On Mar 9, 1998 this sequence version replaced Contact: Soares, MB Program for Rat Gene Discovery and Mapping
University of Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA817854 456 bp mRNA EST 03-JUL-1999 UI-R-A0-ae-g-10-0-UI.S1 UI-R-A0 Rattus norvegicus cDNA clone UI-R-A0-ae-g-10-0-UI 3' similar to gb|L33869|RATCERU Rat norvegicus
                                                                                              97044477
                                                                                                                  Genome Res. 6 (9), 791-806 (1996)
                                                                                                                                             discovery
                                                                                                                                                                 Normalization and subtraction: two
                                                                                                                                                                                          Bonaldo, M.F.,
                                                                                                                                                                                                                                                                                                                                                                    EST
                                                                                                                                                                                                                                                                                                                                                                                        AA817854
AA817854.1 GI:4198380
                                                                                                                                                                                                                                            Rattus
                                                                                                                                                                                                                                                                Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                         Eukaryota;
                                                                                                                                                                                                                                                                                                               Rattus norvegicus
                                                                                                                                                                                                                                                                                                                                        Norway rat.
                                                                                                                                                                                                                                                                                                                                                                                                                                  ceruloplasmin mRNA, complete cds, mRNA sequence.
                                                                                                                                                                                                                   (bases 1 to 456)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: skin; Vector: pOTB7; Site_1: XhoI; Site_2: ECORI; cDNA made by oligo-dT priming. Directionally cloned into EcoRI/XhoI sites using the following 5' adaptor: GGCACGAC(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-CDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies)." a 276 c 232 g 212 t 1 others
                                                                                                                                                                                                                                                           Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Butheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                          Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 315; DB 11;
Pred. No. 2.7e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 11;
                                                                                                                                                                 approaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                 ç
                                                                                                                                                                 facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     227
```

Qy

В Š QΥ DЪ δÃ 밁

B

B

20 В 2 В ρ

B

COMMENT

SOURCE

VERSION

```
RESULT
BF150467
                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                  ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
ACCESSION
                                                                  DEFINITION
                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439 GTATAAGAAGGCCCTTTATTCTGAGTACACAGATGGCACCTTTACGAAGACTATAGACAA 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               618 gtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaag
                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                      AAAAGATATTGCATCAGGACTCA
                                                                                                                                                                                                                                              aaaagacttgaattcaggcctca
                                                                                                                                                                                                                                                                                                                     tccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGTTCACGTAAAGAACTTTGCCTCTAGGCCCTACACTTTTCATGCTCATGGGGTAACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCAGCCTGGATAGGGCTTTTAGGCCCTGTCATCAAAGCTGAAGTTGGAGACAAAGTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggt 737
                                                                                                                                                                                                                                                                                             TCCTGGCGAGGGAGACAGCAATTGTGTGTGACCAGGATTTACCACTCTCATGTGGATGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                             tgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACCAAGGCGAACGAGGGGCCATCTACCCTGACAACACCACTGATTTTCAAAGAGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGACAAACTGTTTCCTGGACAGCAGTATTTGTACGTGCTGCGTGCC---AATGAGCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   210;
                                        uy86b07.y1
similar to
sequence.
BF150467
                                                                                     BF150467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The sequence tag present in the cDNA between the NotI site and the oligo-dT track served to identify it as a clone from the normalized adult Ovary library. cDNA Library Preparation: M. Fatima Bonaldo, Ph.D. Clone distribution: clones will be available through Research Genetics This clone is also available through the I.M.A.G.E. Consortium at LLNL (info@image.llnl.gov). IMAGE ID-1767329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLYA=No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            451 Eckstein Medical Research Building Iowa City, IA 52242, USA Tel: 319 335 8250
Fax: 319 335 9565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: msoares@blue.weeg.uiowa.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /lab_host="DH10B (Life Technologies)"
/note="Vector: pT/T3D-Pac (Pharmacia) with a modified
polylinker; Site_I: Not I; Site_Z: Eco RI; This library
consists of a mixture of individually tagged normalized
libraries constructed from rat placenta, adult lung, brain
, liver, kidney, heart, Spleen, ovary, and muscle. The tag
is a string of 3-5 nucleotides present between the Not I
site and the oligo-dT track which allows identification of
the library of origin of a clone within the mixture."

a 105 c 101 g 144 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="Sprague-Dawley"
/db_xref="taxon:10116"
/clone="UI-R-A0-ae-g-10-0-UI"
/clone_lib="UI-R-A0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Rattus norvegicus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                        NCI_CGAP_Mam5 Mus musculus cDNA clone IMAGE:3666421 5'
SW:CERU_MOUSE Q61147 CERULOPLASMIN PRECURSOR ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9.5%;
54.8%;
                                                                                     dq 699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 95; DB 10;
Pred. No. 4e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                     29-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                                                                  917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                          Бр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
Ş
                                               Db
                                                                                         Ş
                                                                                                                                        В
                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                             QY
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                        391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      211 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 270
  979 aaagacttgaattcaggcctca 1000
                                               508 CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATNTACCACTCCCATGTTGATGCTCNC 567
                                                                                                                                                                                                                                                                 ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                             GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                        gataaagtottcootggtggaagcoatacatatgtotggcaggtootgaaagagaaatggt 918
                                                                                                                                                                                                                                      ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTNTCAACGGGCTGAT 450
                                                                                                                                                                                                                                                                                                                                                                           attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207; Conservative
                                                                                              ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
                                                                                                                                                                                                                                                                                                                                    GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys CDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: NCI-CGAP clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               High quality sequence stop: 428 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BF150467.1 GI:11031862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seq primer: -40RP from Gibco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       National Cancer Institute, Cancer Genome Anatomy Project (CGAP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGI:1427189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      image.llnl.gov/image/html/iresources.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 669)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="NCI_CGAP_Mam5"
/tissue_type="tumor, gross tissue"
/dev_stage="7 months"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="C57/B6"
/db_xref="taxon:10090"
/clone="IMAGE:3666421"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 92.6; DB 11;
Pred. No. 2.4e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               142 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

```
RESULT
AA461838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                       Ş
                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
В
                                                                                      В
                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                    Query Match
                                                                                                                                                                               Matches
                                                                                                                                                                                                 Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  568 AAAGATATTGCATCAGGACTCA 589
                                                                                                                           619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
  137
                         679 ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                        77
                                                                                    TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 136
  CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA461838 477 bp mRNA EST 10-JUN-1997
vf95d04.rl Soares_mammary_gland_NbMMG Mus musculus cDNA clone
IMAGE:851527 5' similar to gb:M13699 CERULOPLASMIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maria,M., Hillier,L., Allen,M., Bowles,M., Dietrich,M., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA461838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seq primer: -28m13 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This clone is available royalty-free through LLNL; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Waterston,R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA461838.1 GI:2186729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MGI:503679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMAGE Consortium (info@image.llnl.gov) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 477)
                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              quality sequence stop: 413.
                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                             Bonaldo."
a 102 c
                                                                                                                                                                                                                                                                                                                                                                                                 T 3']; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and clor the Not I and Eco RI sites of the modified pT/T3 v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ) with a modified polylinker; Site_1: Not I; Site_2: Ecorn; 1st strand cDNA was primed with a Not I - oligo(dT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:10090"
/clone="IMAGE:851527"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                         constructed and normalized by Bento Soares and M.Fatima
                                                                                                                                                                                                                                                                                                                                                                              RNA provided by Dr. Minoru Ko, Wayne State Univ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="organ: mammary gland; Vector: pT7T3D-Pac (Pharmacia ) with a modified polylinker; Site_1: Not I; Site_2: Eco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="mammary gland"
/dev_stage="4 weeks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Soares_mammary_gland_NbMMG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'lab_host="DH10B"
                                                                                                                                                                                               9.2%;
                                                                                                                                                                                 0;
                                                                                                                                                                            Score 92.4; DB 10;
Pred. No. 2.4e-16;
0; Mismatches 171;
                                                                                                                                                                                                                                                                                                               102 g
                                                                                                                                                                                                                                                                                                                 125 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Louis,
                                                                                                                                                                                                                                                                                                                                                                                                     the modified pT7T3 vector.
                                                                                                                                                                                   Indels
                                                                                                                                                                                                                           Length 477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                             I and cloned into
                                                                                                                                                                                   ω
••
                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                       Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (HUMAN
                                                                                                                                                                                      <u>بسا</u>
• •
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AI526753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   739 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ഗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGATATTGCATCAGGACTCA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mouseest@watson.wustl.edu
This clone is available royalty free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1999)
Contact: Marra M.WashU-NCI Mouse EST Project 1999
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
Tel: 314 286 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Marra,M., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AI526753 625 bp mRNA EST 18-MAR-1999 uj42e03.y1 Sugano mouse liver mlia Mus musculus cDNA clone IMAGE:1922620 5' similar to gb:M13699 CERULOPLASMIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MGI:978912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HUMAN);, mRNA sequence.
AI526753
AI526753.1 GI:4440888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AI526753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 625)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           primer: custom primer used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop:
Location/Qualifiers
          /note="Organ: liver; Vector: pME18S-FL3; Site_1: DraIII (CACTGTGTG); Site_2: DraIII (CACCATGTG); Ist strand cDNA was primed with an oligo(dT) primer (ATGTGGCCTTTTTTTTTTTTTTTTT]; double-stranded cDNA was ligated to a DraIII adaptor (TCTTGGCCTACTGG), digested and cloned into distinct DraIII sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site CACCATGTG). XhoI should be used to isolate the cDNA insert. Size selection was
performed to exclude fragments <1.5kb.
                                                                                                                                                                                                                             /dev_stage="adult"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                   /sex="female"
                                                                                                                                                                                                                                                                                                /clone_lib="Sugano mouse liver mlia"
                                                                                                                                                                                                                                                                                                                                                        /strain="C57BL"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                   /clone="IMAGE:1922620"
                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  625 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           256
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG923886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    585 AAAGATATTGCATCAGGACTCA 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            979 aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           919 ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468 GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             859 gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      408 ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           739 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGCCTGGCTAGGGCTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 287
                                                                                                                                                            Tissue Procurement: Jeffrey Green M.D. cDNA Library Preparation: Life Technologies, Inc. cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                      http://image.llnl.gov
Plate: LLAM10912 row: j column:
                                                                                                  High quality sequence stop:
                                                                                                                                                                                                                                                                                                                                   Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                    NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602824585F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:4953333 5',
                                                                                                                                                                                                                                                                                       Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                 Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BG923886.1 GI:14304362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG923886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 658)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
/strain="FVB/N"
/db_xref="taxon:10090"
                                       /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science). Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' primer CGACCTGCAGCACA."
                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             658 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches 171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 92.4; DB 10; Pred. No. 2.7e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                     657.
                                                                                                                                                                                                                                                                                                                                                    Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          407
                                                                                                                                                                                    þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
BG977142
                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gataaagtottcoctggtggaagcoatacatatgtotggcaggtcotgaaagagaaatggt 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAGATATTGCATCAGGACTCA 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCCTGGCTAGGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208;
                                                          Tissue Procurement: Jeffrey Green M.D.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
                                                                                                                                                                                                                                                                                                                        Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                             Contact: Robert Strausberg, Ph.D. Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                             Unpublished (1999)
                                                                                                                                                                                                                                                 NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                    EST
                                                                                                                                                                                                                                                                                                                                                                                                                                             BG977142.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
BG977142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            602846744F1 NCI_CGAP_Mam6 Mus musculus
                 found through the I.M.A.G.E. Consortium/LLNL http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                 nouse mouse.
                                                                                                                                                                                                                                                                                               (bases 1 to 783)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"

a 131 c 148 g 177 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
/dev_stage="5 months"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="IMAGE:4953333"
                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:14364779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  783 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 92.4; DB 11;
Pred. No. 2.7e-16;
0; Mismatches 171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMAGE:4977442 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ų.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   407
```

밁 QΥ DЬ Q Вр Q 밁 Qy 밁 Ş DЬ Qy

δÃ

밁

```
RESULT
BE912296
                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                        COMMENT
                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                       ACCESSION
                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                          ORGANISM
                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               679
                                                                                                                                                                                                                                                                                                                                                                                                                613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   256 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                              AAAGATATTGCATCAGGACTCA 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                  aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High
                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; 1 (bases 1 to 878) NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                    Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Tissue Procurement: Gilbert Smith,
                    Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                          Mus musculus
                                                                                                                                                                                               house mouse.
                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                     BE912296.1 GI:10409387
                                                                                                                                                                                                                                                          BE912296
                                                                                                                                                                                                                                                                          mRNA sequence.
                                                                                                                                                                                                                                                                                          601666013F1 NCI_CGAP_Mam1 Mus
                                                                                                                                                                                                                                                                                                                BE912296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         quality sequence start: 42 quality sequence stop: 772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: mammary; Vector; pCMV-SPORT6; Site_1: Sa. Site_2: Not1; Cloned unidirectionally. Primer: Oligo (Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"

a 161 c 176 g 210 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="5 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="IMAGE:4977442"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 92.4; DB 11;
Pred. No. 2.9e-16;
                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 171;
                                                                                                                                                                                                                                                                                                musculus cDNA clone
    Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                IMAGE: 3966051 5',
                                                                                                                                                                                                                                                                                                                    29-SEP-2000
                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435
```

```
SOURCE
                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                       AK014835
                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gataaagtottccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAGATATTGCATCAGGACTCA 559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccaatggcctctgacccactgtgccttacctactcatatcttttctcatgtggacctggta 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCCTGGCTAGGGTTTTTTAGGCCCCTGTCATCAAAGCTTGAAAGTTGAAGATAAAGTTTAT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208;
                                                                        Mus musculus
                                                                                                                                          clone_lib:RIKEN full-length enriched mouse
                                                                                                                                                                       CAP trapper.
Mus musculus (strain:C57BL/6J) adult male testis cDNA to mRNA.
                                    Eukaryota;
                                                                                                             clone:4921507J22.
                                                                                                                                                                                                                                                        AK014835.1 GI:12852907
                                                                                                                                                                                                                                                                                            AK014835
                                                                                                                                                                                                                                                                                                                                                              Mus musculus adult
                                                                                                                                                                                                                                                                                                                                                                                                      AK014835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        http://image.llnl.gov
Plate: LLAM9138 row: j column:
                                                                                                                                                                                                                                                                                                                             library, clone:4921507J22, full insert sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              High
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              quality sequence stop: 596.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Library Preparation: Life Technologies, Inc.
Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall;
Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT.
Library constructed by Life Technologies. Investigator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        providing samples: Gilbert Smith, NIH"
1 188 c 195 g 227 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:10000"
/clone="IMAGE:3966051"
/clone_1ib="NCI_GAP_Maml"
/tissue_type="tumor, biopsy sample"
/dev_stage="3 months, virgin"
/lab_host="DH10B"
       Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism≃"Mus musculus"
                                        Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                               3739 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.2%;
                                                                                                                                                                                                                                                                                                                                                          male testis cDNA, RIKEN full-length
                                        Chordata;
   Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 92.4;
Pred. No. 36
                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
Sciurognathi;
                                        Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171;
                                                                                                                                              cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 878;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
   Muridae;
Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                          enriched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PUBMED
                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shibata, K., Itoh, M., Aizawa, K., Nagaoka, S., Sasaki, N., Carninci, P., Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M., Suni, N., Ishiry, Nakamura, S., Hazama, M., Nishine, T., Harada, A., Yamamoto, R., Matsumoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K., Fujiwake, S., Inoue, K., Togawa, K., Izawa, M., Ohara, E., Watahiki, M., Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J., Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y., RIKEN integrated sequence analysis (RISA) system-384 format sequencing pipeline with 384 multicapillary sequencer csearch. 10 (11), 1757-1771 (2000)
                                                                                                                                                                                                 cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riker Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. First strand cDNA was primed with a primer [5' GAGAGAGAGAGGATCCAAGAGCTCTTTTTTTTTTTTTTVN 3'], cDNA was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Adachi, J., Aizawa, K., Akahira, S., Akimura, T., Aono, H., Arai, A., Arakawa, T., Carninci, P., Fukuda, S., Fukunishi, Y., Furuno, M., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hori, F., Imotani, K., Ishii, Y., Itoh, M., Izawa, M., Kato, H., Kawai, J., Kojima, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Kojima, Y., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, H., Miyazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, H., Ohno, M., O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Physical and Chemical Research (RIKEN), Laboratory for Genom Exploration Research Group, RIKEN Gemomic Sciences Center (GRIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yo Kanagawa 230-0045, Japan (E-mail:genome-resegsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Fax:81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Okido, T., Owa, C., Saito, H., Saito, R., Sakai, C., Sakai, K., Saisaki, D., Shibata, K., Shibata, Y., Shinagawa, A., Shiraki, T., Sogabe, Y., Suzuki, H., Tagami, M., Tagawa, A., Takahashi, F., Tanaka, T., Tejima, Y., Toya, T., Yamamura, T., Yasunishi, A., Yoshida, K., Yoshino, M., Muramatsu, M. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Itoh,M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genes Genome research. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Please visit our web site (http://genome.gsc.riken.go.jp/) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Functional annotation of a Nature 409, 685-690 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The RIKEN Genome Exploration Research Group Phase II Team and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome research. 20499374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 3739)
Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High-efficiency full-length cDNA cloning Methods in enzymology. 303, 19-44 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 3739)
Carninci, P. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FANTOM Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         205309:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11042159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10349636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11076863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 3739)
                                                                                                                                                                                  BamHI, Host: DH10B.
                                    /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      full-length mouse cDNA collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Shibata, K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yokohama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sano, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GSC),
```

Вb Qy Вþ Qy Вþ

B 20 Qy

Qy

Вþ Ω 밁

DЪ

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 1
AI225600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                      JOURNAL
                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAGATATTGCATCAGGACTCA 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gataaagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggt 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AI225600 1006 bp mRNA EST 29-OCT-19
uj06c05.yl Sugano mouse liver mlia Mus musculus cDNA clone
IMAGE:1891112 5' similar to gb:Ml3699 CERULOPLASMIN PRECURS
                                 WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Lc
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                                                          Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
                                                                                                                                                                      Waterston,R.
The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                      AI225600.1 GI:3808653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                Contact: Marra M/Mouse EST Project
                                                                                                                                                      Unpublished (1996)
                                                                                                                                                                                                        Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                          (HUMAN);, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                nouse mouse
                                                                                                                                                                                                                                                                                         (bases 1 to 1006)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
clone is available royalty-free through
                     mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="testis"
/clone_lib="RIKEN full-length enriched mouse
/dev_stage="adult"
768 c 821 g 995 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="MGD:MGI:1907105"
/db_xref="MGD:MGI:88476"
/clone="4921507J22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 92.4; DB 12; Pred. No. 5e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CERULOPLASMIN PRECURSOR
                                                                               Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3739;
   LLNL ; contact the
                                                                                 <u>×</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۳,
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                  Вр
                                                                                                                           LOCUS
                                                                                                                                                                                                                                  밁
  KEYWORDS
                     VERSION
                                       ACCESSION
                                                                                                     DEFINITION
                                                                                                                                              AA865338/c
                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                               859 gataaagtcttccctqgtggaagccatacatatgtctggcaggtcctgaaagagaatggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    739 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                                                                                                                                                    584 NAAGATATTGCATCAGGACTCA
                                                                                                                                                                                                                                                                         979 aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 346
                                                                                                                                                                                                                                                                                                                                                                                                       GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCCC---ATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                      ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
                                                                                                                                                                                                                                                                                                                     CCTGGAGAGGGAGACAGCANTTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMAGE\ \mbox{Consortium} (info@image.llnl.gov) for further information. MGI:975436
AA865338
AA865338.
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: custom primer used
                                                                               AA865338 521 bp mRNA EST 29-APR-1998 og88d10.s1 NCI_CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1455379 3'similar to gb:M13699 CERULOPLASMIN PRECURSOR (HUMAN);, mRNA
                                                               sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //note="Organ: liver; Vector: pME18S-FL3; Site_1: DraIII (CACTGTGTG); Site_2: DraIII (CACCATGTG); 1st strand cDNA was primed with an oligo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTTTTT]; double-stranded cDNA was ligated to a DraIII adaptor [TGTTGGCCTACTGG], digested and cloned into distinct DraIII sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site CACCATGTG). XhoI should be used to isolate the cDNA insert. Size selection was performed to exclude fragments <1.5kb. Library constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science). Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CGACCTGCAGCTCGAGCACA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="C57BL"
/db_xref="taxon:10090"
/clone="IMAGE:1891112"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Sugano mouse liver mlia"
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.2%;
                                                                                                                                                                                                                                        605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 92; DB 10;
Pred. No. 4.1e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       XhoI should
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and 3' end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                            583
                                                                                                                                                                                                                                                                                                                                                                                                                                                       918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  738
                                                                                                                                                                                                                                                                                                                                                                                                             523
```

۲,

```
Ωy
                                                                                                              20
                                                                         д
                                                                                                                                                              밁
                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                               DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
        977 taaaagacttgaattcaggcctca
                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                              305
                                                                                                                                                                                                                                                                                                                                                                                                                 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                        677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           425 TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           617 tgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaa 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                        atgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatg 916
                                                                     GTCCTGGGGAAGGAGATGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC
                                                                                                          gtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg
                                                                                                                                                     ATGACAAAGTATATCCAGGAGAGCAGTATACATACATGTTGCCTTGCCACTGAAGAACAAA 126
                                                                                                                                                                                                                                        ACTATAAGGAACATGAGGGGGCCATCTACCCTGATAACACCACAGATTTTCAAAGAGCAG 186
                                                                                                                                                                                                                                                                             tcattacacttaagaacatggcttccccatcctgtcagtcttcatgctgttggtgtatcct 796
                                                                                                                                                                                                                                                                                                                                                                                                        AACCGGTCTGGCTTGGGTTTTTAGGCCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT 306
                                                                                                                                                                                                                                                                                                                                                                                                                                           99ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtgg 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             High
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA Library Preparation: M. Bento Soares, Ph.D. CDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Clone distribution: NCI-GGAP clone distribution found through the I.M.A.G.E. Consortium/ILNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Emmert-Buck, M.D., Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 521)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        National Cancer Institute, Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              primer: -40ml3 fwd. ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               quality sequence stop: 360.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       מ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            constructed by Bento Soares and M. Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not and Eco RI sites of the modified p7773 vector. Library went through one round of normalization. Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="IMAGE:1455379"
/clone_lib="NCI_GAP_Kid5"
/tissue_type="2 pooled tumors (clear cell type)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.1%;
52.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 91.2; DB 10 Pred. No. 5.7e-16;
                              1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 521;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Michael
                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
    γQ
                                             멍
                                                                                  Q
                                                                                                                                Дb
                                                                                                                                                                       Qγ
                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                рь
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 1
AL556703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                               499
                                                                                                                                                                                                                                                                                                  319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                     259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             617 tgtacaaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaa 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65 CAAAAGATATTGCCTCAGGACTCA 42
taaaagacttgaattcaggcctca 1000
                                         GTCCTGGGGAAGGAGATGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC 558
                                                                 9tccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg
                                                                                                                                                     atgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatg 916
                                                                                                                                                                                                                                                                                                                                                                                                        ATGACAAAGTATATCCAGGAGAGCAGTATACATACATGTTGCCTTGCCACTGAAGAACAAA 498
                                                                                                                                                                                                           ACTATAAGGAACATGAGGGGGCCATCTACCCTGATAACACCACAGATTTTCAAAGAGCAG
                                                                                                                                                                                                                                                   tcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcct 796
                                                                                                                                                                                                                                                                                                                                                                              AACCGGTCTGGCTTGGGTTTTTAGGCCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 918)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL556703 918 bp mRNA EST 16-FEB-2001 AL556703 LTI_NFL006_PL2 Homo sapiens cDNA clone CSODK005YI02 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: segref@genoscope.cns.fr,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prime, mRNA
AL556703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Li, W.B., Gruber, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL556703.1 GI:12899623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          а
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="placenta"
/note="Vector: pCMVSPORT 6; Site_1: Not!; 1st strand cDNA
/note="Vector: pCMVSPORT 6; Site_1: Not!; 1st strand cDNA
was primed with a Not!-oligo(dT) primer. Five prime end
enriched with a Not!-oligo(dT) primer. Five prime end
cloned into the Not! and Eco RV sites of the pCMVSPORT 6
vector. Library was normalized. Library was constructed by
Life Technologies, Contact: Feng Liang Life Technologies,
a division of Invitrogen 9800 Medical Center Drive
Rockville, Maryland 20850, USA Fax: (1) 301 610 8371
Email: filang@lifetech.com URL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://fulllength.invitrogen.com<sup>®</sup>
1 169 c 192 g 253 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="LTI_NFL006_PL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="CS0DK005YI02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jessee, J. and Polayes, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 91.2; DB 10;
Pred. No. 6.9e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 918;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
```

438

378

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                         Вр
                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
δõ
                                             밁
                                                                                        Qy
                                                                                                                                              멍
                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG862595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                559 CAMANGATATTGCCTCAGGACTCA
                                                                                                                                                                                                                                                                                                                                                                                        619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                 270
859 gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 918
                                                                                                                                                                                                                                                                                                                                             210 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTCAGACTATAGACAAA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                               CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 329
                                                                                                                                                                                                                                                                        ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                    attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                                              GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                        602795978F1 NIH_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4917258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 632)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               http://image.llnl.gov
Plate: LLAM10828 row: k column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tissue Procurement: Lothar Hennighausen Ph.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG862595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG862595.1 GI:14213133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MCC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop: 631.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Library."
a 125 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note-"organ: mammary; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: Sall; Cloned unidirectionally. Primer: Oligo dT. Average insert 2.5 kb. Library constructed by Life Technologies, catalog # 12018-016. Investigators providing samples: Lothar Hennighausen/Priscilla Furth, NIH Reference for transgenic model: Li et al., Cell Growth and Differentiation 7, 3-11 (1996). Note: this is a NCI_CGAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="tumor, gross tissue"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="IMAGE:4917258"
/clone_lib="NIH_CGAP_Mam4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                            9.1%; 54.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           632 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 90.8; DB 11; Length 632; Pred. No. 7.9e-16; 0; Mismatches 172; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    139 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         173 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Collection (MGC)
```

```
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 1
AV653260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                     Qy
                                                                                                                                                                             QУ
                                                                                                                                                                                                                   DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
Вþ
                                Q
                                                                    밁
                                                                                                                                             дδ
                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            617 tgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaa 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     507 CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 566
                                                                                                                                                                           677 ggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtgg
                                                                                                                                                                                                                     203 TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 262
                                                                                                                                             263 AACCGGTCTGGCTTGGGTTTTTAGGCCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT
                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                      AAAGATATTGCATCAGGACTCA 588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
   ACTATAAGGAACATGAGGGGGCCATCTACCCTGATAACACCACAGATTTTCAAAGAGCAG
                                                                        tcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcct 796
                                                                                                                                                                                                                                                                                          200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qian,B., Wu,T., Huang,Q., Huang,C., Kang,B., Gao,X., Xu,Z., Xiao,I,Xu,X., Li,N., Peng,Y., Liu,F., Qu,J., Song,H., Cheng,Z., Qu,J., Zeng,L., Xu,S., Gu,W., Tu,Y., Jia,J., Fu,G., Ren,S., Zhong,M., Lu,G., Yang,Y., Gu,Y., Chen,Z. and Han,Z. Homo sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AV653260 GLC Homo sapiens cDNA clone GLCDJA09 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chinese National Human Genome Center at Shanghai
351 Guo Shoujing Road, Zhangjiang Hi-Tech Park, Pudong, Shanghai
201203, P. R. China
Tel: 86-21-50801919(ex.45)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AV653260.1 GI:9874274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Zeguang Han
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: hanzg@chgc.sh.cn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fax: 86-21-50801922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 634)
                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="corresponding non cancerous liver tissue"
/dev_stage="Adult"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Vector: pBluescript sk(-); Site_1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="GLC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="GLCDJA09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            is available at CHGC
                                                                                                                                                                                                                                                                                                             9.0%;
52.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .634
                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                             Score 89.6; DB 10;
Pred. No. 1.8e-15;
                                                                                                                                                                                                                                                                                                                                                                                                   128 g
                                                                                                                                                                                                                                                                                                Mismatches 184;
                                                                                                                                                                                                                                                                                                                                                                                                         172 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in
                                                                                                                                                                                                                                                                                                                                                                                                         2 others
                                                                                                                                                                                                                                                                                                                                Length 634;
                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-SEP-2000
                                                                                                                                                                                                                                                                                                0;
                                        856
                                                                            382
                                                                                                                                                  322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xiao,H.
                                                                                                                                                                                                                                                                                                0,
```

```
QУ
                                                                                В
                                                                                                                     Qy
                                                                                                                                                                  밁
  ₽
                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 1
BF144665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
  333
                   739 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 798
                                                                                                                         679
                                                                                                                                                            213 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 272
                                                                                                                                                                                      619 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             563 CAAAAGATATTGCCTCAGGACTCA 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              977 taaaagacttgaattcaggcctca 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        443 ATGACAAAGTATATTCAGGAGAGCAGTATACATACATGTTGCCTTGCCACTGAAGAACACA 502
                                                                                                                                                                                                                                                                        Local Similarity
GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                            CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 332
                                                                                                      ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               atgataaagtottocotggtggaagcoatacatatgtotggcaggtootgaaagagaatg 916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCCTGGGGAAGGAGATGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg 976
                                                                                                                                                                                                                                                     201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tissue Procurement: Gilbert Smith, Ph.D.

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by:Incyte Genomics, Inc.

Clone distribution: NCI-CGAP clone distribution information can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
BF144665
BF144665.1 GI:10983705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Plate: LLAM9278 row: f column: 07 High quality sequence stop: 679.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 880)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BF144665 880 bp mRNA
601791527F1 NCI_CGAP_Lu30 Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              house mouse
                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                 Ø
                                                                                                                                                                                                                                                                                                                                                                            Investigator providing samples: Gilbert Smith, NIH" 150\ c 236\ g 226\ t
                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Organ: lung; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; transgenic model WNT-1, expression driven MMTV-LTR enhancer; Cloned undifrectionally. Primer: Oli dT. Library constructed by Life Technologies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="tumor, metastatic to mammary"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
/strain="CZECH II"
/db_xref="taxon:10090"
/clone="IMAGE:4022022"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="NCI_CGAP_Lu30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 880
                                                                                                                                                                                                                                                                    8.7%;
                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                              Score 87.2; DB 11;
Pred. No. 1e-14;
0; Mismatches 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               musculus cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gene Collection (MGC)
                                                                                                                                                                                                                                                                                          Length 880;
                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMAGE:4022022 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24-OCT-2000
                                                                                                                                                                                                                                                 w
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Primer: Oligo
                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             bу
```

```
δÃ
                                                                       Ъ
                                                                                                         Qγ
                                                                                                                                                  В
                                                                                                                                                                                ΔÃ
                                                                                                                                                                                                                          DЪ
                                                                                                                                                                                                                                                            Ş
                                     979
                                                                           510
                                                                                                                                                  453
570 AAAGATATTGAT 581
                                                                                                                                                                                                                        393 ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 452
                                                                                                                                                                                                                                              799 tggaaagcttctgagggagctgaatatgatgatgatcagaccagtcaaagggagaaagat 858
                                                                                                                                                                      aaagacttgaat 990
                                                                       CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 569
                                                                                                                                                  GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 509
                                                                                                         ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 978
```

Search completed: January 17, 2002, 14:58:38 Job time: 8639 sec

•				
•				

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               on:
 GenEmbl:*

1: gb_ba:*
2: gb_ht:*
4: gb_om:
5: gb_om:
6: gb_pat
7: gb_pat
7: gb_pt
10: gb_p1
11: gb_s
11: gb_s
11: gb_s
12: gb_s
11: em_
14: gb_'
15: em_
17: em_
20: em
21: em
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            January 17, 2002, 16:24:21; Search time 5101.32 Seconds (without alignments) 3237.138 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-740-211-13_COPY_6000_7000
1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1472140 seqs, 8248589755 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cctgcaactttatccgcctc.....ggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                        gb_pr:*
gb_ro:*
gb_sts:*
gb_sy:*
gb_un:*
gb_vi:*
em_ba:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gb_ba:*
gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                       gb_ov: *
gb_pat: *
gb_ph: *
gb_pl: *
em_htgo_hum:*
em_htgo_inv:*
em_htgo_rod:*
em_htg_hum:*
em_htg_inv:*
em_htg_rod:*
em_htg_other:*
                                                                                                                                                                                                                                                                                            em_fun:*
em_hum:*
em_in:*
                                                                                                                                                                                                             em_or:*
em_ov:*
em_pat:*
                                                                                                                em_sy:*
em_un:*
em_vi:*
                                                                                                                                                                               em_pl:*
em_ro:*
                                                                                                                                                                 em_sts:*
                                                                                                                                                                                                                                                                               em_om:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2944280
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

38 44 44 5 44 5		c c c c 27 c c 320 c 331		0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Result No c 1 c 2
1001 1001 1001 1001 1001 1001 1001	1001 1001 1001 1001	1001 1001 1001 1001 1001 1001	1001 1001 1001 1001 1001	10001	Score 1001 1001 1001
100.0 100.0 100.0 100.0	000000		100.0		P4 10000
2865 2865 2867 2869 2869 2869 2871 2891	2716 2722 2743 2746 2854	2704 2710 2710 2713 2713 2713 2716	2695 2695 2695 2695 2701 2701	2000 2000 2000 2000 2000 2000 2000 200	
12 12 12 12 12	12 12 12		12 12 12 12		DB 6 12 12
CYPGEM1 SYNPGEM1V CYPGEM3 SYNPGEM3V CYPGEM2 CYPGEM2 SYNPGEM2V CYPGEM4 CYT7NCO	SYNPOM2V SYNPIC20HV CVPGEM3Z CVPGEM4Z CVU34922	SYNPOM9V SYNPUC830V SYNPUC931V SYNPOM3V SYNPOM4V SYNPOM1V SYNPOM1V	SYNPICISHV SYNPUC81V SYNPUC91V SYNPUC92V SYNPIC19HV SYNPIC19HV	CVUT4374 CVPSP72 CVPSP73 ASAJ2679 SYNPUC9V SYNPUC7V SYNPUC7V A02712 SYNPUC13V A02710 SYNPUC13V A02710 SYNPUC13V A02710	ID XX27819 AF264618 CVPSP70 CVPSP71
108870 pcEm1 cloni x65302 Cloning vec L08872 pcEm3 cloni x65301 Cloning vec L08871 pcEm2 cloni x65303 Cloning vec U25273 Expression	938 pOM2 clo 912 pIC20H c 304 Cloning 305 Cloning 922 Cloning	42 POM9 42 PUC83 43 PUC93 39 POM3 40 POM4 40 POM4 13 PIC2C 13 POM1	puca- puca- puca- puca- puca-	cloning cloning cloning cloning cloning cloning cloning cloning puc8 elc puc9 elc puc7 elc puc7 elc puc12 el puc13 DNA puc13 DNA puc13 DNA puc13 DNA puc14 DNA puc18 DNA puc18 DNA	Description AX027819 Sequence AF264618 Cloning ve X65330 Cloning vec X65331 Cloning vec

ALIGNMENTS

source	FEATURES				JOURNAL		TITLE	AUTHORS	REFERENCE		ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	LOCUS	AX027819/c	RESULT 1
12297	Location/Qualifiers	GHISOTTI DANIELA (IT)	ORSINI GAETANO (IT); TONON GIANCARLO (IT); ZUFFI GABRIELE (IT);	BESTETTI GIUSEPPINA (IT) ; CALI SIMONA (IT) ; NORPHARMA SPA (IT) ;	Patent: WO 0039307-A 11 06-JUL-2000;	nucleosides and modified analogues thereof	Recombinant bacterial strains for the production of natural	Bestetti, G., Cali, S., Orsini, G., Tonon, G., Zuffi, G. and Gnisotti, D.	1 (bases 1 to 2297)	artificial sequence.	synthetic construct	synthetic construct.	•	AX027819.1 GI:10188663	AX027819	Sequence 11 from Patent WO0039307.	AX027819 2297 bp DNA PAT 16-SEP-2000		

```
Ωy
                                 DЬ
                                                          Qy
                                                                                        Db
                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                 Ъ
                                                                                                                                                                          QY
                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                DЪ
                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1022
    901
                                                             841
                                                                                          362
                                                                                                                     781
                                                                                                                                                   422
                                                                                                                                                                              721
                                                                                                                                                                                                           482
                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                  542
                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                   662
                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                           722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                            9tctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                            atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC 663
                                                                                                                                                                                                                     caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                              9ccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGGAAAAGTGCCACCTGAC
                                                                                                                                                                                                        CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                               GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTCCTTTTT
                                                                                                                                                                                                                                                                                                                       TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                     tetteageatettttaettteaecagegtttetgggtgageaaaaacaggaaggeaaaat
                                                                                                                                                                                                                                                                                                                                                                                TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                              tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="synthetic construct"
/db_xref="taxon:32630"
/note="cloning vector derived from
574 c 580 g 572 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         puc18"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                  840
                                                                                                                                                                                                        423
                                                                                                                                                                                                                                                               483
                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       903
                                                                                       303
                                                                                                                                                363
                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                       543
                                                                                                                                                                                                                                                                                                                                                                                603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REMARK
COMMENT
 Db
                              δÃ
                                                            B
                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF264618/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                         Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                               61
                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   242
                                                           agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCCGTCAGGGGCGCGTCA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcgggtgttggcgggtgtcgggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGGTGTTGGCGGGTGTCGGGGCTTGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF264618 236
Cloning vector p
AF264618 M74308
AF264618.1 GI:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1905257
2 (bases
Vieira,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       University, 190 Frelinghuysen Road, Piscataway, Sequence update by submitter On Oct 3, 2000 this sequence version replaced g. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (26-SEP-2000) Waksman Institute, University, 190 Frelinghuysen Road, Piscat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University, 190 Frelinghuysen Road, Piscataway, 3 (bases 1 to 2368)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
Submitted (27-APR-1993) Waksman Institute,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gene 100,
91276241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vieira, J. and Messing, J.

New pUC-derived cloning vectors with different selectable markers and DNA replication origins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 artificial sequence;
1 (bases 1 to 2368)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cloning vector pUC6S. Cloning vector pUC6S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vieira, J. and Messing, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases
                                                                                                                         Conservative
                                                                                                                                                                                                                    þ
                                                                                                                                                                                                                  EIGASLIKHW"
1 589 c
                                                                                                                                                                                                                                            IELDLINSGKILESFRPEERFPMMSTFKVLLCGAVLSRIDAGOBOLGRRIHYSONDLVE
YSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHVTRL
DRWEDELINEAIPNDERDTTMEVAMATTLRKLLTGELLTLASROOLLDWAEADKVAGPL
LRSALPAGWETADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                    /gene='
                                                                                                                                                                                                                                                                                                         /product="beta-lactamase"
/protein_id="AAG1832.1"
/db_xref="G1:10504975"
/translation="MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="multiple cloning site"
513. .1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Cloning vector
/db_xref="taxon:137702"
                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                  /gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and Messing, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189-194 (1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ť
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:10504974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 2368
                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _pUC6S,
                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 vectors.
                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complete sequence
                                                                                                                      Score 1001; DB 12;
Pred. No. 1.2e-274;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                 φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       version replaced gi:209216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          puc6s"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rutgers
away, NJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rutgers
away, NJ
                                                                                                                       Indels
                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           03-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08854,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08854,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             State
                                                                                                                       0
                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
 1040
                                                                                                                       0
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                           RESULT
CVPSP70
                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                              20
                                          SOURCE
                                                                                                                   DEFINITION
REFERENCE
                                                                      KEYWORDS
                                                                                     VERSION
                                                                                                  ACCESSION
                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 799
                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                           439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                      tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                   gcgggtgttggcgggtgtcggggcttggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                            atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                     GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 159
                                                                                                                                                                                                                                                                 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                        acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                                                                     TTTCGTCTCGCGCGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTAGAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                               Cloning vector pSP70.
x65330
                       promoter.
Cloning vector psp70.
Cloning vector psp70
artificial sequence; vectors 1 (bases 1 to 2417)
                                                                      beta-lactamase; bla gene;
                                                                                     X65330.1 GI:58235
                                                                                                                                DNA
                                                                        cloning
                                                                                                                                circular
                                                                         vector;
                                                                         multiple
                                                                         cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      980
                                                                                                                                                                                                                                                                    200
                                                                                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                           260
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                Qy
                                                                                                          Š
                                                                                                                                                  В
                                                                                                                                                                                    Qy
                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                      Вþ
                                                                                                                                                                                                                                                                                                                                      Qy
  밁
                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REMARK
                                                                                                                                                                                                                                                                                                                                                                                  Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                            1364
                                                                                                                                                                                                                                                                                                      1304
  1544
                                                                                                              181
                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                  61
                    agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                          CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1483
                                                                                                                                                                                                                                                agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                        CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1363
                                                                                              tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                            AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                        TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (28-MAY-1993) Technical Services, Promega Corporation 2800 Woods Hollow Road, Madison, Wi 53711-5399, USA See X65300-X65335 for related vector sequences This vector can be obtained from Promega Corporation, Madison,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (23-MAR-1992) Technical Services, Promega Corporation, 2800 Woods Hollow Road, Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Technical, Services
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Outside U.S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Order or Technical 800-356-9526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This vector can be obtained from Promega Corporation, Ma
Call one of the following numbers for order or technical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            revised by 2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  In Wisconsin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        information:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Technical,Services.
                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 2417)
                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 1001; DB 12; ilarity 100.0%; Pred. No. 1.2e-274; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="T7 transcription initiation site"
57. .73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2401. .2417
/note="SP6 promoter"
1 599 c 592 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IELDLNSGKILESFRPEERFPMMSTFKVLLCGAVLSRIDAGQEQLGRRIHYSQNDLVE
YSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHVTRL
DRWEPELNEAIPNDERDTTMPVAMATTLRKLLTGELLTLASRQQLIDWMEADKVAGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="Beta-lactamase"
/protein_id="CAA46430.1"
/db_xref="GI:58236"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(1090. .1950)
/gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EIGASLIKHW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(1090.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="T7 promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="multiple cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="SP6 transcription initiation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Cloning vector pSP70"
/db_xref="taxon:90135"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation="MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  800-356-9526
608-274-4330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .1950)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ct
                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Corporation,
                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
      1603
                                                                                                                                                                                                                                                                                                                                                    60
                                                                                  1543
                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                             RESULT
CVPSP71
                                                                                                                                                                                                                                                                   ACCESSION
VERSION
          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                    REFERENCE
                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                  REMARK
                                                                                                                                                                                                       ORGANISM
                                       JOURNAL
                                                                   AUTHORS
                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                        2264
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1664
                                                                                                                                                                                                                                                                                                                                                                                                                     961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                     9C999t9tt9gC9g9t9tC9g9gCtggCttaaCtatgCggC 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                            acgglcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1663
                                                                                                                                                                                                                                                                                                                                                                                     GCGGGTGTTGGCGGGTGTCGGGCTTGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagggaaggcaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTT 1963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT 1903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
Direct Submission
Submitted (28-MAY-1993) Technical Services, Promega
2800 Woods Hollow Road, Madison, Wi 53711-5399, USA
See X65300-X65335 for related vector sequences
                                                                                                                                                                                                     Cloning vector pSP71.
Cloning vector pSP71
                                                                2 (bases 1 to 2419)
Technical, Services.
                                                                                                                                                                         artificial sequence; vectors.
1 (bases 1 to 2419)
                                                                                                                                                                                                                                                                                  Cloning vector pSP71 X65331
                                                                                                 revised by
                                                                                                                  2800
                                                                                                                            Submitted (23-MAR-1992)
                                                                                                                                           Direct Submission
                                                                                                                                                             Technical, Services.
                                                                                                                                                                                                                                     promoter.
                                                                                                                                                                                                                                                 beta-lactamase;
                                                                                                                                                                                                                                                                    X65331.1 GI:58237
                                                                                                               Woods Hollow Road,
                                                                                                                                                                                                                                                                                                             2419 bp
                                                                                                                                                                                                                                                   bla
                                                                                                                                                                                                                                                   gene;
                                                                                                            Technical Services, Promega Corporation Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                 cloning
                                                                                                                                                                                                                                                                                                             circular
                                                                                                                                                                                                                                                 vector;
                                                                                                                                                                                                                                                                                                                                                                                     2304
                                                                                                                                                                                                                                                                                                             SYN
                                                                                                                                                                                                                                                 multiple
                                                                                                                                                                                                                                                                                                             16-JUL-1999
                                                                                                                                                                                                                                                cloning
                                Corporation
                                                                                                                                                                                                                                                site;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
```

```
δÃ
                                                     DЬ
                                                                                   ρ
                                                                                                                     Ъ
                                                                                                                                                   Qy
                                                                                                                                                                                         Дb
                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                         БР
                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1606
                                                                                                                                                                                                                                                         1486
                                                                                                                                                                                                                                                                                                                                                                                           1366
                                                                                                                                                                                           1546
                                                                                                                                                                                                                                                                                                                           1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                    421
                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        promoter
                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                   gtcatgccatccgtaagatgcttttctgtgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                       agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact 300
                                                                                                                                                                                                                                                                                                                                       cgctcgttcgttttggtattggcttcattcagctccggtttcccaacgatcaaggcgagttaca 180
                 ccacatagcagaactttaaaaagtgctcatcattggaaaacgttcttcggggggaaaactc
                                                  GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                    GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                      AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                       tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                      CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                        AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                         agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1001;
Order or Technical 800-356-9526
In Wisconsin 800-356-9526
Outside U.S. 608-274-4330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This vector can Call one of the information:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EIGASLIKHW"
2402. .2419
/note="SP6 promoter"
a 601 c 592 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IELDLNSGKILESFRPEERFPMMSTFKVLLCGAVLSRIDAGQEOLGRRIHYSONDLVE
YSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHVTRL
DRWEPELNEAIPNDERDTTMFVAMATTLRKLLTGELLTLASRQQLIDMMEADKVAGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="Beta-lactamase"
/protein_id="CAA46431.1"
/db_xref="GI:58238"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(1092. .1952)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation="MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="T7 transcription
complement(1092..1952)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Cloning vector
/db_xref="taxon:90136"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="multiple cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="SP6 transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     be obtained from Promega Corporation, Madison, following numbers for order or technical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      initiation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       initiation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pSP71"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2419;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                   420
                                                                                                                    1665
                                                                                                                                                                                      1605
                                                                                                                                                                                                                                                      1545
                                                                                                                                                                                                                                                                                                                                                                                      1425
                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                        1485
                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WΗ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

Q

δÃ

멍 Ş B

В

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
CVU74374
                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                  FEATURES
                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2026
                               misc_feature
                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 2306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CVU74374 2450 bp Cloning vector pJF5, U74374
                                                                                                                                                                                                                                                                                                                                                                                                                 Cloning Vector pJF5
Cloning Vector pJF5
                                                                                                                                                                                                Stanford Human Genome Center
855 California Ave.
                                                                                                                                                                                                                                                Submitted (11-OCT-1996) Stanford University, Stanford Human Center, 855 California Avenue, Palo Alto, CA 94304, USA
                                                                                                                                                                  Ampicillin Resistance Selectable
                                                                                                                                                                                Palo Alto, CA 94304 USA
                                                                                                                                                                                                                                  Contact: R. M. Myers
                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                   Fan, J
                                                                                                                                                                                                                                                                                                                                 pJF5 Cloning Vector
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                  Fan, J.-B., Quackenbush, J. and
                                                                                                                                                                                                                                                                                                                                                                                                   artificial sequence; vectors.
                                                                                                                                                                                                                                                                                                (bases 1 to 2450) n,J.-B., Quackenbush,J. and
                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 2450)
/note="Multiple Cloning Site
xhoI/PvuII/BstXI/XbaI/BamHI/EcoRI/BstXI/EcoRV/BglII"
                                                                                /organism="Cloning Vector
/db_xref="taxon:53561"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:1649038
                                               /note="SP6 transcription initiation
                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complete sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      circular
                                                                                                                                                                    Vector used
                                                                                                                                                                  in
                                                                                                                                                                    Transposon-Mediated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        960
                                                                                                 δÃ
                                                                                                                                    밁
                                                                                                                                                                Qy
                                                                                                                                                                                                   В
                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
      밁
                               Qy
                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1577
                                                                                                                                      1877
                                                                                                                                                                                                       1817
                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
     caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                     gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                      TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                       tottcagcatotttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                       TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                        tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                     CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                       GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                       GCCGCAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2434. .245v
/note="SP6 promoter"
609 c 602 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="beta-lactamase"
/protein_id="AABI7670.1"
/protein_id="AABI7670.1"
/db_xref="G1:1649039"
/translation="MSTQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY
/translation="MSTQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGRRIHYSQNDLVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHVTRL
DRWEPELNEAIPNDERDTTMPVAMATTLRKLLTGELLTLASRQQLIDWMEADKVAGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EIGASLIKHW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(1123.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="T7 promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transcription initiation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1001; DB 12;
Pred. No. 1.2e-274;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
```

1456

0,

240 1516

1576

2056

1996

660

1936

600 1876 540 1816

1756

420

1696

360 1636 300 밁 QΥ В δÃ 밁 Qy 뫄 δÃ B δÃ ₽ Qy Ъ

```
REFERENCE
AUTHORS
                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                  REMARK
                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                              REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                               gene
                                                          misc_feature
                                                                                                              misc_teature
                                                                                                                                        misc_feature
                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGGTGTTGGCGGGTGTCGGGCTTGGCTTAACTATGCGGC 2337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                     Order or Technical 800-356-9526
In Wisconsin 800-356-9526
Outside U.S. 608-274-4330.
                                                                                                                                                                                                                                                       Direct Submission
Submitted (12-JAN-2000) Technical Services, Promega Corporation, 2800 Woods Hollow Road, Madison, Wi 53711-5399, USA On Jan 26, 2000 this sequence version replaced gi:58239. See X65300-X65335 for related vector sequences
This vector can be obtained from Promega Corporation, Madison, W Call one of the following numbers for order or technical
                                                                                                                                                                                                                                                                                                                                                                               2800 Woods Hollow Road, revised by [3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cloning vector pSP72.
Cloning vector pSP72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X65332
X65332.2 GI:6759494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CVPSP72 24
Cloning vector
                                                                                                                                                                                                                                              information:
                                                                                                                                                                                                                                                                                                                                                      Technical, Services.
                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (28-MAY-1993)
                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                   Technical, Services.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2800 Woods Hollow Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (23-MAR-1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Technical, Services.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        artificial sequence; vectors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              beta-lactamase; bla
                                                                                                                                                                                                                                                                                                                                                                                                                                                              revised by [2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 2462)
                                                                                                                                                                                                                                                                                                                                                                     (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 2462)
  /note="T7 transcription complement(1135...1995)
/gene="bla"
complement(1135...1995)
                                                                                  /note="multiple cloning 99. .118
                                                                      /note="T7 promoter"
                                                                                                                         /note="SP6 transcription initiation
                                                                                                                                                  /organism="Cloning vector pSP72"
/db_xref="taxon:90137"
                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                 1 to 2462)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pSP72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Technical Services, Promega
Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                                                                                                           Technical Services, Promega Corporation, Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Madison,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cloning vector; multiple cloning site;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 circular
                                            initiation site"
                                                                                               sites"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Corporation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
    밁
                          Q
                                                     В
                                                                                Š
                                                                                                          밁
                                                                                                                                 QΥ
                                                                                                                                                              В
                                                                                                                                                                                      20
                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                  QУ
                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                 ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1001;
1889
                                                                                                                                                                                                                   1829
                                                                                                                                                                                                                                                                                                                          1709
                                                                                                                                                                                                                                                                                                                                                                              1649
                                                                                                                                                                                                                                                                                                                                                                                                                                  1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        promoter
                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                       CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                   caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                               TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                     CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGGAAAACTC
                                                                                                                                                                                                                                                                                                                         GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/trans1_table=11
/product="Beta-lactamase"
/protein_id="CAA46432.1"
/db_xref="GI:58240"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      join(2446. .2462,1.
/note="SP6 promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EIGASLIKHW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="bla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            605 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               619
```

```
/translation="msighervaliperaafclpvfahpetlvkvkdaedglgarvgy ieldlinggkildsfrpeerfpmstfkvllcgavlsridaggedgrrihysgnblve yspveektipokmyvekcsaaltmsdnyaallltyiggepettafilmmghdythe Drwepelneaipnderdtmpvamattlrklitgelltlasrgglidmmeadkvagpl
{	t LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA}
```

Score 1001; DB 12; Pred. No. 1.2e-274; Indels Length 0 Gaps 0

agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120 cgctcgttcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA

gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCCAGCACTGCATAATTCTCTTACT TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga 420 1708 1588 1528 240 1648 300

2128 780 2068 720 2008 660 1948 600 1888

1828 480 1768

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CVPSP73
                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2189
                                                             CDS
                                                                                                                                                                                                                   misc_teature
                                                                                                                                                                                                                                                                  source
                                                                                         gene
                                                                                                                        misc_feature
                                                                                                                                                     promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGGTGTTGGCGGGTGTCGGGGCTTGGCTTAACTATGCGGC 2349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CVPSP73
Cloning
                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (12-JAN-2000) Technical Services, Promega Corporation, 2800 Woods Hollow Road, Madison, Wi 53711-5399, USA On Jan 26, 2000 this sequence version monitoring.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cloning vector pSP73.
Cloning vector pSP73
                                                                                                                                                                                                                                                                                                                                                                        On Jan 26, 2000 this sequence version replaced gi:58241. See X65300-X65335 for related vector sequences This vector can be obtained from Promega Corporation, Madison,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (23-MAR-1992)
2800 Woods Hollow Road,
                                                                                                                                                                                                                                                                                              Order or Technical 800-356-9526
In Wisconsin 800-356-9526
Outside U.S. 608-274-4330
                                                                                                                                                                                                                                                                                                                                                          Call one of the following numbers for order or technical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Technical, Services.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (28-MAY-1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            revised by [2]
2 (bases 1 to 2464)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 2464)
Technical, Services.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       artificial sequence; vectors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   beta-lactamase; bla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X65333.2 GI:6759495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X65333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 revised by [3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2800 Woods
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rechnical,Services.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            loning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oning vector pSP73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 2464)
                                                                                                                         /note="T7
103
                                           complement(1137. .1997)
/gene="bla"
                                                                         complement(1137.
/gene="bla"
                                                                                                                                                     /note="multiple cloning
101. .120
                                                                                            /note="T7 transcription initiation site"
complement(1137. .1997)
                                                                                                                                                                                                   /note="SP6 transcription
                                                                                                                                                                                                                                 /organism="Cloning vector
/db_xref="taxon:90138"
                                                                                                                                                                                                                                                                               Location/Qualifiers
/product="Beta-lactamase"
                /transl_table=11
                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hollow Road,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2464 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pSP73
                                                                                                                                      promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Technical Services, Promega Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Technical Services, Promega Madison, Wi 53711-5399, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               circular
                                                                                                                                                                       sites"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vector; multiple
                                                                                                                                                                                                      initiation
                                                                                                                                                                                                                                                pSP73"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SYN
                                                                                                                                                                                                      site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Corporation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Corporation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                            ΣH
```

```
Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЬ
                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                 δÃ
                                                                                                             밁
                                                                                                                                                                     밁
                                                                                                                                                                                              ΩV
                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                            ₽
                        QY
                                                      В
                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1651
                                                                                                                                                                      1951
                                                                                                                                                                                                                                                                                                                                             1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1411
                                                                                                                                                                                                                               1891
                                                                                                                                                                                                                                                                                                                                                                                                     1711 GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                            tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                  gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1410
               gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840
                                                                      atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                            caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                     tottcagoatottttactttcaccagogtttctgggtgagcaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                    CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                      TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                       ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="msiqhfrvalipffaafclpvfahpetilkkvdaedolgarvgy ieldlinsgkilesfrederfraktifffagedolgaritysondlyr ieldlinsgkilesfrederfraktifftagedolgaritysondlyr gypytektifjomtyrelcsaaltiksontaantlltytigepkeltafilhungdhytkldræpelneaipvderflyraktiffkliasroqlidmmeadkvagpl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EIGASLIKHW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="CAA46433.1"
/db_xref="GI:58242"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="SP6 promoter"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(2448.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2464,1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              606 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2464;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1590
   2190
                                                                                                                                                                                                                                  1950
                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                1830
                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                         1770
                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                             2130
                                                                                                                                                                                                                                                                                          1890
                                                                                                                   2070
                                                                                                                                              720
                                                                                                                                                                           2010
                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

멍

```
밁
                            QΥ
                                                      Дb
                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
ASAJ2679
LOCUS
                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                          Matches
                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
     1459
                                                        1399
                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2191
                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                 بر
agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                          1001;
                                                   CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                thtcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGGTGTTGGCGGGTGTCGGGGCTTGGCTTAACTATGCGGC 2351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
Submitted (07-NOV-1997) Philippsen P., Applied Microbiology, University of Basel, Biozentrum, Klingelbergstr. 70, Basel,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New heterologous modules for classical or disruptions in Saccharomyces cerevisiae Yeast 10 (13), 1793-1808 (1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ASAJ2679 2512 bp I
Synthetic DNA containing
multiple cloning site, ps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CH-4056,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    artificial sequence.
1 (bases 1 to 2512)
Wach, A., Brachat, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             synthetic construct. synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Philippsen, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        beta-lactamase; bla gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AJ002679
AJ002679.1 GI:2623973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95266357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 2512)
                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                        /gene="bla"
complement(1185.
/gene="bla"
/codon_start=1
/transl_table=11
                                                                                                                                                                                       EIGASLIKHW"
629 c
                                                                                                                                                                                                                         /translation="msiqhfrvalipffaafclpvfahpetlykykdaedqlgarvgy
Ieldlnsgkilesfrpeerfpmmstfkvllcgavlsridagqeqlgrrihysqndlve
Yspvtekhlydgmtveelcsaaitmsdntaanlllttiggpkeltaflhnmgdhytrl
Drweedelneaipnderdttmpvamattlrklltgelltlasrqqlinmmeadkvagpl
                                                                                                                                                                                                                                                                                 /product="beta-lactamase"
/protein_id="CAA05682.1"
/db_xref="GI:2623974"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SWITZERLAND
                                                                                                                                                                                                               {\tt LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA}
                                                                                                                                                                                                                                                                                                                                                                                        complement(1185.
                                                                                                                                                                                                                                                                                                                                                                                          /note="Multiple cloning site"
complement(1185. .2045)
                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:32630"
                                                                                                                                                                                                                                                                                                                                                                                                                                               organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        location/Qualifiers
                                                                                                                     100.0%;
                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pohlmann, R. and Philippsen, P. ules for classical or PCR-based gene
                                                                                                                                                                                       622
                                                                                                                    Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                psp72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ONA SYN 28-MAR-2000
Escherichia coli plasmid pFA6a, bla gene,
                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  derivative.
                                                                                                       0;
                                                                                                         Indels
                                                                                                                                Length
                                                                                                                                  2512;
                                                                                                       0;
                                                                                                      Gaps
                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                       0;
                                                                             DEFINITION ACCESSION
                                                                                                                  RESULT 9
                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                             QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                  KEYWORDS
                                                                VERSION
                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              дЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                         ORGANISM
```

```
2359
                                                                                                                                                    2239
                                                                                                                                                                                                                                                                                                         2119
                                                                                                                                                                                                                            2179 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                   2059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1519
              961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                       721 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                    | tttcgtctcgcgcgtttcggtgatgacggtgaaaaccttctgacacatgcagctcccggag
GCGGGTGTTGGCGGGTGTCGGGCTTAACTATGCGGC
                                                                                            acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                        ACGGTCACAGCTTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                 gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                 caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                       ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                               CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                        2358
                                                                                                                                                  2298
                                                                                                                                                                                                                            2238
                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                       2178
                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1878
                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                 2118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
```

Synthetic construct E synthetic construct artificial sequence. 1 (bases 1 to 2665)

DNA.

SYNPUC8V pUC8 clos L08959

cloning

DNA

circular

L08959.1

2665 bp ing vector. GI:310827

```
COMMENT
                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
Query Match
Best Local Similarity
Matches 1001; Conserv
                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      These data and their annotation were supplied to GenBank by Will Gilbert under the auspices of the GenBank Currator Program. pUC8 Cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gilbert, W. Obtained from VecBase 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VecBase(3):pUC12, VecBase(3):pEMBL8m, VecBase(3):pEMBL8p,
VecBase(3):pUC830, VecBase(3):pOM2, VecBase(3):pOM4,
VecBase(3):pOM8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE pUC8 - Cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (1991)
                                                                                                                                                                                                                                                        POLYLINKER
SELECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CROSSREFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                              pUC8
mut 1107 T
mut 1408 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Assembled from pUC18 and M13mp8 by F. Pfeiffer, MPI, Martinsried Revised 16-DEC-1986 by F. Pfeiffer: 2287/8 'AT' to 'TA' to match revised sequence of PBR322 The strand shown contains the beta-galactosidase mRNA sequence including the multiple cloning site of M13mp8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Vieira J., Messing J.
#journal Gene (1982) 19: 259-268
#comment see also 'note added in proof'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Features of pUC8 (2665 bp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #comment vector I-A-iv-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #authors Pouwels P.H., Enger-Valk B.E., Brammar W.J.
#book Cloning Vectors, Elsvier 1985 and supplemen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #number 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #number 1
                                                                                                                                                                                                   #indicator beta-galactosidase
MARY pUC8 #length 2665
                                                                                                                                                                                                                                                                                            931-1719 1-789 Ap-R; b-lactamase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #brother
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #parent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #sequence 16-DEC-1986
                                                                                                                                                                                                                                                                                                                                                                                    Conflict
                                                                                                                                                                                                                                                                                                                                                                                                                                         230-
268-
427-
                                                                                                                                                                                                                                         #resistance
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VecBase(3):pUC81, VecBase(3):pUC82, VecBase(3):pIC7 PARENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VecBase(3):pUC7, VecBase(3):M13mp8, VecSource(3):bGal8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecBase(3):pUC8c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VecBase(3):pUC9
                                                                                                              þ
                                                                                                          /organism="synthetic construct"
/db_xref="taxon:32630"
680 c 670 g 661 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               artificial
                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VB0021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17-SEP-1986
                                                                                                                                                                   . 2665
                                                                                                                                                                                                                                                                         EcoRI-SmaI-BamHI-SalI-PstI-HindIII
                                                                                                                                                                                                                                                                                                                                                                                    (cfl) and Mutations (mut):
                  100.0%; Score 1001; DB 12; 100.0%; Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                   1303-1461
2351-2252
2210-2074
4355-2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6002-6427
1069-1297
                                                                                                                                                                                                                                                                                                                              source
C 3912
G 3611
                                                                                                                                                                                                                                                                                                                              3912 (c) pBR322
3611 (c) pBR322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
   0,
                                                                                                                                                                                                                                                                                                                                                                                                   (c) pBR322
(c) pBR322
(c) pBR322
     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                            polylinker
Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M13mp8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #TYPE DNA CIRCULAR
                                                                                                                                                                                                     #checksum
     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of M13mp8
     Indels
                                    Length 2665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   supplements
   0;
     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          рисв
     0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                     Q
                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                            Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                      QΥ
                                                                                                                                 밁
                                                                                                                                                      Ωy
                                                                                                                                                                                B
                                                        Qy
                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1330 TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1390
                                                                                                                                                                                                                                                                                                                                                                                                                           1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                841 tttcgtctcgcgcgttttcggtgatgacggtgaaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                   610
                                                                                              901 acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca
                                                                                                                                 670 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                   550 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
                                                                                                                                                                                                                                                                                                                                                                            caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                          gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG 1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1331
                                                                                                                                                                                                                                ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                            atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                               GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                      510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1031
                                                                                      551
                                                                                                                                      611
                                                                                                                                                                                     671
                                                                                                                                                                                                            840
                                                                                                                                                                                                                                    731
                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                     791
                                                                                                                                                                                                                                                                                                                                   851
```

SYNPUC9V/c

DEFINITION

SYNPUC9V

UC9V 2665 bp cloning vector.

DNA

circular

SYN

0,

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                    931-1719 1-789 Ap-R; b-lactamase
POLYLINKER HindIII-PStI-SalI-BamHI-SmaI-EcoRI
                                                                                                          FEATURE
                                                       SELECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                            VecBase(3):pUC931,
VecBase(3):pOM9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CROSSREFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         artificial sequence.
1 (bases 1 to 2665)
Gilbert, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE pUC9 - Cloning vector 
17-SEP-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               These data and their annotation were supplied to GenBank by Gilbert under the auspices of the GenBank Currator Program.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION VB0022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Obtained from VecBase 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              L09128
L09128.1 GI:310832
                                                                                                                                    pUC9
mut 1107 T
#indicator beta-galactosidase
                                  #resistance
                                                                                                                         mut 1408 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Assembled from pUC19 and M13mp9 by F. Pfeiffer, MPI, Martinsried Revised 16-DEC-1986 by F. Pfeiffer: 2287/8 'Ar' to 'TA' to martch revised sequence of PBR322 The Strand shown contains the beta-galactosidase mRNA sequence
                                                                                                                                                                              Conflict
                                                                                                                                                                                                               233 - 268
269 - 426
427 - 526
527 - 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Vieira J., Messing J.
#journal Gene (1982) 19: 259-268
#comment see also 'note added in proof'
                                                                                                                                                                                                                                                                                                                                       Features of pUC9 (2665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #offspring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #brother
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         including the multiple cloning site of M13mp9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #comment vector I-A-iv-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #authors Pouwels P.H., Enger-Valk B.E., Brammar #book Cloning Vectors, Elsvier 1985 and suppl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #number 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #sequence 16-DEC-1986
                                                                                                                                                                                                                                                                                                      residue
1- 426
                                                                                                                                                                                                                                                                                                                                                                      VecBase(3):pUC91, VecBase(3):pUC92
VecBase(3):pIC19H, VecBase(3):pIC19R
VecBase(3):pICEM19Hm, VecBase(3):pICEM19Hp,
VecBase(3):pICEM19Rm, VecBase(3):pICEM19Rp
                                                                                                                                                                                                                                                                                                                                                                                                                                                         VecBase(3):pUCl3, VecBase(3):pEMBL9m, VecBase(3):pEMBL9p,
VecBase(3):pUC931, VecBase(3):pOM1, VecBase(3):pOM3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecBase(3):pUC8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VecBase(3):pUC9c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecBase(3):pUC7, VecBase(3):M13mp9, VecSource(3):bGal9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           artificial
                                                                                                                                                                           (cfl) and Mutations (mut):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCC 37252
                                                                                                                                                                                           1304-1461
2351-2252
2350-2074
4355-2354
                                                                                                                                                                                                                                                                                  source
6372-6797
1069-1298
                                                                                                                     source
C 3912
G 3611
                                    Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                       00
                                                                                                                                                                                         (c) pBR322
(c) pBR322
(c) pBR322
                                                                                                                       pBR322
pBR322
                                                                                                                                                                                                                                                                                                                                     (dq
                                                                                                                                                                                                                                           Lac-Operon
polylinker (
Lac-Operon
                                                                                                                                                                                             pBR322
pBR322
                                                                                                                                                                                                                                                                                                      Ml3mp9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #TYPE DNA CIRCULAR
 #checksum
                                                                                                                                                                                                                                                                 of M13mp9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           supplements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Will
```

```
Db
                                                                      δÃ
                                                                                                           망
                                                                                                                                           Qy
                                                                                                                                                                                  멍
                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                              DЬ
                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1090 CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1150 GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                     841 tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                               721 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                         661 caatattattgaagcatttatcagggttattgtctcatgaagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                 970 TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                 541 tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagggaaggcaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421 ccacatagcagaactttaaaagtgctcattaggaaaacgttcttcgggggcgaaaactt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 ogctogttogtttggtatggcttcattcagctccggttccccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               سر
acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                           TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                           gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840
                                                                                                                                                                                ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                       CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                            GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCCAAGTCATTCTGA 1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
1. .2665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="synthetic c
/db_xref="taxon:32630"
679 c 671 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                     611
                                                                                                           671
                                                                                                                                                                                                                                                                                                                            851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SYNPIC7V/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      550 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 artificial sequence.
1 (bases 1 to 2668)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic construct DNA synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SYNPIC7V 2668 b
pIC7 cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gilbert under the auspices of the GenBank Currator Program. pIC7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          These data and their annotation were supplied to GenBank by Will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Obtained from VecBase 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE pIC7 - Cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L08880.1 GI:310785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L08880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                        CROSSREFERENCE
                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION VB0090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Assembled from pUC8 and GenBank:pIC7 by F. Pfeiffer COMMENT For construction of pIC7, a synthetic oligonucleotide has been used to replace the pUC8 polylinker and the construct a new cloning vector with a different polylinker. The other pIC-vectors are based on this new pIC7 polylinker, which was combined with the existing pUC9 and pUC19 polylinkers in the
                                                                                                                                                                          chemically synthesized oligonucleotide, specifying nine restriction sites including BglII, XhoI, NruI, ClaI, SacI and EcorV in various configurations with existing polylinkers, was created. These improved polylinkers were inserted into plasmids for routine cloning of ds-DNA and into chimeric phage/plasmids for biological production of ss-DNA. The most versatile polyrecognition pattern specifies 17 restriction sites in the beta-galactosidase alpha-complementing gene fragment. Clone pIC7 was used to produce all the other polylinker-carrying
                                                                                                                                                                                                                                                                                                                                                                                                                                       pIC20R: EcoRI- Poly (pIC7) -HindIII- Poly(pUC19) -EcoRI pIC20H: HindIII- Poly(pUC19) -EcoRI - Poly (pIC7) -HindIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pIC19R: EcoRI- Poly (pIC7) -HindIII- Poly (pUC9) -EcoRI pIC19H: HindIII- Poly (pUC9) -EcoRI - Poly (pIC7) -HindI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #authors Marsh J.L., Erfle M., Wykes E.J.
#journal Gene (1984) 32: 481-485
                                                                                                                                                                                                                                                                                                                                                          To produce greater versatility of insertional inactivation of beta-galactosidase activity for subcloning and sequencing, a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pIC20-vectors:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pIC19 and pICEM19 vectors:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #title
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                following arrangements:
                                                                                                 #parent
                                                                                                                                                                                                                                                                                                                                                                                                      from GenBank:
                                                            #offspring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sites for recombinant selection by insertional inactivation
VecBase(3):pIC19H, VecBase(3):pIC19R,
VecBase(3):pIC20H, VecBase(3):pIC20R,
VecBase(3):pICEM19Hm, VecBase(3):pICEM19Hp,
                                                                            VecBase(3):pUC8, GenBank(50):pIC7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The pIC plasmid and phage vectors with versatile cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   artificial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-FEB-1987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2668 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #TYPE DNA CIRCULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -HindIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                     DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                        δã
                                                                  밁
                                                                                                     Qy
                                                                                                                                               망
                                                                                                                                                                                Qy
                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1393
                                                                                                                                                                                                                                                                                                                                                                                        1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1213
                                                                                                                                                                                                                                                                                                         1093
                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
```

```
Best Local Sin
Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga 540
                                                                                                                                                                                                                                                                                                       caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                    gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaacccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tgatccoccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cgctcgttcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                   gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                             TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAAGGCAAAAT 914
                                                                                                                                                                                                                            GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  934-1722 1-789 Ap-R; b-lactamase POLYLINKER ECORI-ClaI-ECORV-XbaI-BglII-XhoI-SacI-NruI-HindIII SELECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conflict (cfl) and Mutations (mut):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1- 235
230- 268
263-2668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #indicator beta-galactosidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Features of pIC7 (2668 bp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VecBase(3):pICEM19Rm, VecBase(3):pICEM19Rp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pIC7 #length 2668
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:32630"
677 c 668 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260-2665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1- 235
1- 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          puc8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         puc8
polylinker of pIC7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       665 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #checksum 6564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 12; Length 2668;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                  974
                                                                                                                                                                                                                                                                                                                  1034
                                                                                                                                                                                                                                                                                                                                                                                                   1094
```

```
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYNPUC7V/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      853 CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcggtca 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ttcgtctcgcgcgtttcggttgatgacggttgaaaacctctgaccatgcagctcccggag 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtctaagaaaccattattatcatgacattaacctataaaaaataggcgtatcacgaggccc 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG 614
                                                                                                                                                                      CROSSREFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1991)
These data and their annotation were supplied to GenBank by Gilbert under the auspices of the GenBank Currator Program.
Cloning vector
                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION VB0020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DATE 17-SEP-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      artificial sequence.
1 (bases 1 to 2674)
Gilbert, W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pUC7 cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SYNPUC7V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Obtained from VecBase 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic construct DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    L08958.1 GI:310823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L08958
                                                                                                                                                                                                Assembled from pUC19 and M13mp7 by F. Pfeiffer, MPI, Martinsried Revised 16-DEC-1986 by F. Pfeiffer:
2296/7 'Ar' to 'TA' to match revised sequence of PBR322
The strand shown contains the beta-galactosidase mRNA sequence including the multiple cloning site of M13mp7.
residue source
                                                      #offspring
                                                                                                                                                                                                                                                                                                                                                                                                            #authors Vieira J., Messing J.
#journal Gene (1982) 19: 259-268
#comment see also 'note added in proof'
                                                                                                                                                                                                                                                                                                                   #comment vector I-A-iv-20
                                                                                                                                                                                                                                                                                                                                     #authors Pouwels P.H., Enger-Valk B.E., Bra
#book Cloning Vectors, Elsvier 1985 and
                                                                                                                                                                                                                                                                                                                                                                              #number 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #sequence
                                                                                                               #parent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #number 1
                               VecBase(3):pUC8, VecBase(3):pUC9, VecBase(3):pUR222 PARENT
                                                                    VecBase(3):pBR322, VecBase(3):M13mp7,
GenBank(50):EcoLac, VecSource(3):bGa17
                                                                                                                             VecBase(3):pUC7c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              artificial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2674 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-DEC-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #TYPE DNA CIRCULAR
                                                                                                                                                                                                                                                                                                                                                         Brammar W.J.
                                                                                                                                                                                                                                                                                                                                   supplements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Will
puc7
```

```
밁
                                Š
                                                                     Ъ
                                                                                                    20
                                                                                                                                        В
                                                                                                                                                                       Qγ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                          1039
                                                                                                                                                                                                             1099
                                                                                                                                                                                                                                                                                  1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1399 CGCTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1519 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCCGGGAAGCTAGAGTAAGT 1460
                                                                                                                                                                           481
                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                     1279 AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1459 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                               361 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocal Similarity
                                                                 tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga 540
                                                                                                                                                                                                                            ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                    gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                         agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTCCTTTTT
              gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC 1040
                                                                                                                                                                                                                                                                             GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGCG 1100
                                                                                                                                                                                                                                                                                                                                                    GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   940-1728 1-789 Ap-R; b-lactamase POLYLINKER ECORI-BamHI-SalI-PstI-SalI-BamHI-ECORI SELECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pUC7 source
mut 1116 T C 3912 (c) pBR322
mut 1417 A G 3611 (c) pBR322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   278- 435 1304-1461 Lac-Jopano 436- 535 2351-2252 (c) pBR322 536- 672 2210-2074 (c) pBR322 673-2674 4355-2354 (c) pBR322 Conflict (cfl) and Mutations (mut):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #indicator beta-galactosidase
MARY pUC7 #length 2674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     940-1728 1-789 Ap-R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #resistance Ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1- 435
1- 229
230- 277
278- 435
436- 535
536- 672
673-2674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            656 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:32630"
682 c 673 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .2674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pUC7 #length 2674
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 1001; DB 12; 100.0%; Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1069-1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6002-6436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lac-Operon polylinker Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M13mp7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            663 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of Ml3mp7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                 Дb
                                                                                                                                      8
                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                           δÃ
                                                                    DЬ
                                                                                         δÃ
                                                                                                                                                              В
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                               QУ
δÃ
                       В
                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Locus
                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                          Matches
                                                                                                                  1405
                                                                                                                                                                                                            1525
                                                                                                                                                                 1465
                                                                                                                                                                                                                                                                                                                                                               source
                         1285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                        121
  301
                                             241
                                                                                           181
                                                                                                                                                                                     61
                                                                                                                                                                                                                                                        / Match 100.0%; Score 1001; DB 6;
Local Similarity 100.0%; Pred. No. 1.2e-274;
nes 1001; Conservative 0; Mismatches 0;
                                                                                                                                                                                                           gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCTAAGAAACCATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                     cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                            agttogocagttaatagtttgogcaacgttgttgccattgctacaggcatogtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC
gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga
                                                                                                                 CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1346
                                                                                                                                                                 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A02712
A02712.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A02712
pUC13
                                                                                                                                                                                                                                                                                                                                                                                                                                                         synthetic construct
synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                      Patent:
                                                                                                                                                                                                                                                                                                                                                                                                  PROKARYOTES
                                                                                                                                                                                                                                                                                                                                                                                                            EXPRESSION VECTOR FOR ADJUSTABLE EXPRESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                               artificial
                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 2680)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA sequence
                                                                                                                                                                                                                                                                                                                              מ
                                                                                                                                                                                                                                                                                                                                                                                     WO 8809373-A 10 01-DEC-1988;
                                                                                                                                                                                                                                                                                                                             /organism="synthetic construct"
/db_xref="taxon:32630"
683 c 676 g 664 t
                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:344656
                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence.
                                                                                                                                                                                                                                                                                                                                                                .2680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAT
                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                              OF EXOGENOUS GENES
                                                                                                                                                                                                                                                                                  2680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-APR-1993
                                                                                                                                                                                                                                                           0,:
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960
                                                                      1286
                                                                                            240
                                                                                                                                                                 1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                           0
```

```
Qy
                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                          RESULT 14
SYNPUC12V/c
                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                               Db
                                                                                                                           COMMENT
                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                     ORGANISM
                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                565
                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                              tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    atttagaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tottcagcatottttactttcaccagcgtttctgggtgagcaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAAGACAAGCCCGTCAGGGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                               acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                            These data and their annotation were supplied to GenBank by Gilbert under the auspices of the GenBank Currator Program.
                                                                                                                                                                          artificial sequence.
1 (bases 1 to 2680)
                                                                                                                                                                                                     Synthetic construct
synthetic construct
                        SOURCE
                                 #sequence 16
ACCESSION VB0023
                                                                       ENTRY PUC12 - Cloning vector
                                                                                                 Cloning vector
                                                                                                                                     Unpublished (1991)
                                                                                                                                                    Obtained from VecBase 3.0
                                                                                                                                                                 Gilbert, W.
                                                                                                                                                                                                                                           L09129.1 GI:310821
                                                                                                                                                                                                                                                         pUC12 cloning vector L09129
                                                                                                                                                                                                                                                                                  SYNPUC12V
         REFERENCE
#number
                        artificial
                                                            17-SEP-1986
                                                                                                                                                                                                                                                                                  2680
                                               16-DEC-1986
                                                                                                                                                                                                                                                                              dq
                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                    circular
                                                                                                                                                                                                                                                                                  NAS
                                                                                                                            Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1106
                                                                                                                                                                                                                                                                                                                                                                                                     566
                                                                                                                                                                                                                                                                                                                                                                                                                                                       626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                 pUC12
```

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                  Matches 1001;
                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                          1345
                                                                                                               1405
                                                                                                                                                                                                                                                           1525
                                                                                                                                                                                      1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                            181
                                                                                                                                                   121
241 agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                 61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                          1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                            cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                     TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                      tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                          CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1346
                                                                                                                                                                                   AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1406
                                                                                                                                                                                                                                                        CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLYLINKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CROSSREFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Martinsried
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #authors Vieira J., Messing J.
#journal Gene (1982) 19: 259-268
#journent see 'note added in proof'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #indicator beta-galactosidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  946-1734 1-789 Ap-R; b-lactamase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conflict
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Revised 16-DEC-1986 by F. Pfeiffer: 2302/3 'AT' to 'TA' to match revised sequence of PBR322 The strand shown contains the beta-galactosidase mRNA sequence including the multiple cloning site of MI3mp10. KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #authors Pouwels P.H., Enger-Valk B.E., Brammar W.J.
#book Cloning Vectors, Elsvier 1985 and supplemen
#comment vector I-A-iv-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VecBase(3):pUC18, VecBase(3):pSP64, VecBase(3):pGEM1,
VecBase(3):pSP6T3, VecBase(3):pT712, VecBase(3):pCKSP6 PARENT
Features of pUC12 (2680 bp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #brother
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *parent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Assembled from pUC18 and M13mp10 by F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #number 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #offspring
                                                                                                                                                                                                                                                                                                                                                                                                                                           657
                                                                                                                                                                                                                                                                                                                              100.0%; ilarity 100.0%; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                679-2680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        residue
1- 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VecBase(3):pUC13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VecBase(3):pUC8, VecBase(3):M13mp10, VecSource(3):bGall2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VecBase(3):pUC12c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1423
                                                                                                                                                                                                                                                                                                                                                                                                                                           ۵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pUC12 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pUC12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pUC12 #length 2680
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .2680
                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:32630"
685 c 674 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="synthetic construct"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EcoRI-SacI-SmaI-BamHI-XbaI-SalI-PstI-HindIII SELECTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1303-1461
2351-2252
2310-2074
4355-2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
6006-6442
1069-1297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3912
                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>0</u>0
                                                                                                                                                                                                                                                                                                                                             Score 1001; DB 12;
Pred. No. 1.2e-274;
                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         рвк322
рвк322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ) pBR322
) pBR322
) pBR322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polylinker of M13mp10
Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      M13mp10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #checksum
                                                                                                                                                                                                                                                                                                                                                                  DB 12;
                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfeiffer, MPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and supplements
                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9725
                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                              0;
```

Qy Ъ Q В QΥ 밁 Š

δÃ DЬ

```
DEFINITION ACCESSION
                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SYNPUC13V/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db
                                                                                                                                                 JOURNAL
MEDLINE
                                                                                                                                                                                                                                       AUTHORS
TITLE
                           AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                             ORGANISM
   JOURNAL
                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1225 GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1285 AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841 tttcgtctcgcgcgttttcggtgatgacggtgaaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                || tottcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccacatagcagaactttaaaaagtgctcattattaggaaaacgttcttcgggggcgaaaactt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | tcaaggatcttaccgctgttgagatccagttcgatgtaacccaactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cloning vector pucl3,
                                                                                                                                                                                               Vieira, J. and Messing, J.

The pUC plasmids, an M13mp7-derived system mutagenesis and sequencing with synthetic uncompanies of the company o
                                                                                                                                                                                                                                                                                            Cloning vector pUC13.
Cloning vector pUC13
artificial sequence; vectors
1 (bases 1 to 2680)
                                                          Gilbert, W
                                                                                                                                                 Gene 19 (3), 259-268 (1982)
83106470
Unpublished
                              Obtained from
                                                                                                                        6295879
                                                                                                                                                                                                                                                                                                                                                                                                                                                    L09130.1 GI:310822
                                                                                      (bases 1 to 2680)
                              VecBase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complete sequence
                              .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             circular
                                                                                                                                                                                                        synthetic universal primers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SYN
                                                                                                                                                                                                                                       for insertion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                   source
                                                 CDS
                                                                              misc_feature
                                                                                                           misc_feature
                                                                                                                                          misc_feature
                                                                                                                                                                        misc_feature
                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                    SUMMARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CROSSREFERENCE
                                                                                                                                                                                                                                                                                                                              POLYLINKER HindIII-PstI-SalI-XbaI-BamHI-SmaI-SacI-EcoRI SELECTION
                                                                                                                                                                                                                                                                                                                                                               FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Martinsried
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION VB0024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE pUC13 - Cloning vector DATE 17-SEP-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cloning vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                These data and their annotation were supplied to GenBank by Will Gilbert under the auspices of the GenBank Currator Program. pUC13
                                                                                                                                                                                                                                                                                                                                                                         Conflict (cfl) and Mutations (mut):

pUC13 source
mut 1122 T C 3912 (c) pBR322
mut 1423 A G 3611 (c) pBR322
                                                                                                                                                                                                                                                                                                                                             946-1734 1-789 Ap-R; b-lactamase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VecBase(3):pUC19, VecBase(3):pUC19c,
VecBase(3):pSP65, VecBase(3):pGEM2, VecBase(3):pT713 PARENT
Features of pUC13 (2680 bp)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Revised 16-DEC-1986 by F. Pfeiffer: 2302/3 'AT' to 'TA' to match revised sequence of PBR322 The strand shown contains the beta-galactosidase mRNA sequence including the multiple cloning site of MI3mpll. KEYWORDS
                                                                                                                                                                                                                                                                                                 #indicator beta-galactosidase
                                                                                                                                                                                                                                                                                                                 #resistance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #offspring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Assembled from pUC19 and M13mp11 by F. Pfeiffer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #authors Vieira J., Messing J.
#journal Gene (1982) 19: 259-268
#comment see 'note added in proof'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #authors Pouwels P.H., Enger-Valk B.E., Brammar W.J.
#book Cloning Vectors, Elsvier 1985 and supplements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #parent
VecBase(3):pUC9, VecBase(3):M13mp11, VecSource(3):bGal13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   #comment vector I-A-iv-20
                                                                                                                                                                                                                                                                                                                                                                                                                                            679-2680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VecBase(3):pUC13c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VecBase(3):pUC12
                                                                                                                                                                                                                                                                                  puc13
                                               /note="pBR322"
879. .1739
                                                                                                                                          /note="Lac-operon"
233. .283
/transl_table=11
                /codon_start=1
                                  /note="Ap-R"
                                                                                           /note="Lac-operon"
                                                                                                                        /note="M13mp11 polylinker"
                                                                                                                                                                                     /note="M13mp11"
                                                                                                                                                                                                                  /organism="Cloning vector pUC13"
/db_xref="taxon:154051"
                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           artificial
                                                                                                                                                                                                                                                                                                                                                                                                                                         1304-1461
2351-2252
2310-2074
4355-2354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6002-6442
1069-1298
                                                                              .2680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-DEC-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲
                                                                                                                                                                                                                                                                                 #length 2680
                                                                                                                                                                                                                                                                                                                                                                                                                                         (c) pBR322
(c) pBR322
(c) pBR322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    M13mp11
Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polylinker of M13mp11
Lac-Operon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #TYPE DNA CIRCULAR
                                                                                                                                                                                                                                                                                  #checksum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MPI,
                                                                         밁
                                                                                                                                                                δÃ
                                                                                                     δÃ
                                                                                                                                    В
                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q_{\mathbf{y}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                         1165
                                                                                                                                                                                                                                                               1045
                                                                                                                                                                                                                                                                                                                             1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1465
                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                          421
```

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1525 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1466
721 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                    gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                        gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                          GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                          TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /replace="c"
1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="beta-lactamase"
/product="beta-lactamase"
/protein_id="AAK16201.1"
/db_xref="GI:13236870"
/tanslation="MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY
/translation="MSIQHFRVALIPFFAAFCLPVFAHPETLVKVKDAEDQLGARVGY
IELDLNSGKILESFRPEERFPMMSTFKVLLCGAVLTSIDAGQEQLGRRIHYSQNDLVE
YSPVTEKHLTDGMTVRELCSAAITMSDNTAANILLTTIGGPEELTAFLHNMGDHVTRL
YSPVTEKHLTDGMTVRELCSAAITMSDNTAANILLTTIGGPEELTAFLHNMGDHVTRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /replace="g"
683 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EIGASLIKHW"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DRWEPELNEAIPNDERDTTMPVAMATTLRKLLTGELLTLASRQQLIDWMEADKVAGPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 1001; DB 12; 100.0%; Pred. No. 1.2e-274;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                          866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

DЪ	Qy	ф	Qy	рь	Qy	Ъ	Qy
565 (961 ç	625 Å	901 a	685 i	841 t	745 6	781 g
565 GCGGGTGTTGGCGGGTGTCGGGCTTAACTATGCGGC 525	961 gcgggtgttggcgggtttggcgttaactatgcggc 1001	625 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 566	901 acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca 960	685 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG 626	841 tttcgtctcgcgcfttcggtgatgacggtgaaaacctctgacacatgcagctcccggag 900	745 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC 686	781 gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840

Search completed: January 17, 2002, 16:24:34 Job time: 13795 sec

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N_Geneseq_1101:*
1: /SIDS2/gcgdata,
2: /SIDS2/gcgdata,
3: /SIDS2/gcgdata,
4: /SIDS2/gcgdata,
     8:
9:
111:
112:
113:
114:
115:
116:
116:
118:
119:
220:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        January 17, 2002, 16:32:59; Search time 343.96 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         930621 seqs, 428662619 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-740-211-13_COPY_6000_7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 cctgcaactttatccgcctc.....ggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                /SIDS2/gcgdata/geneseq/geneseqn/Na1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1981.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1983.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1984.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1985.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1986.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1988.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/Na1988.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                       /SIDS2/gcgdata/geneseq/geneseqn/NA1992.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1993.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1994.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1994.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1995.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1996.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1997.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1998.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA2000.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA2001.DAT:*
                                                                                                                                                                                                                                                                                              /SIDS2/gcgdata/geneseq/geneseqn/NA1989.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT:*
                                                                                                                                                                                                                                                                        /SIDS2/gcgdata/geneseg/genesegn/NA1991.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (without alignments)
2495.007 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1861242
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

			ဂ	ი	O	a		C	ი		Resul No
11	10	9	œ	7	σ	ഗ	4	ω	ν	سر	7 F
1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	Score
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Query Match Length
3819	3819	3819	3444	3383	3343	3331	3253	3190	2686	2462	Length
20	19	18	21	21	11	21	19	19	22	21	DB
AAZ22020	AAV39266	AAT78825	AAA51630	AAA51632	AAQ04655	AAZ99245	AAV43439	AAV32980	AAF59053	AAA74638	ID
Nucleotide sequenc	Plasmid pLC6G5 nuc	Kappa light chain	Plasmid pGM679 con	Plasmid pGM678 con	Plasmid p10169 enc	Nucleotide sequenc	DNA sequence of th	Tn7 target plasmid	Plasmid vector pUC	Plasmid pSP72. Es	Description

New recombinant DNA molecule comprising gene encoding p25, useful for producing transgenic animal to serve as model for $\ensuremath{\mathsf{p}}$

WPI; 2000-507252/46

Ahlijanian MK, Mcneish JD; (PFIZ) PFIZER PROD INC. 03-FEB-1999;

99US-0118478

02-FEB-2000; 2000EP-0300797

09-AUG-2000

o							o					C			ი	ი	a			a		c				a						,	a
45	44	43	42	41	40	39	38	37	36	35	34	သ	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	<u>1</u> 3	12
1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001
	100.0		•		•	100.0	•	•	•	100.0		100.0	•	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0		100.0					•	100.0		100.0
4960	4950	4950	4926	4926	4776	4776	4724	4723	4723	4723	4723	4713	4694	4618	4613	4603	4554	4522	4522	4421	4201	4189	4118	4118	4074	4045	4009	3938	3903	3881	3881	3880	3858
22	22	18	20	19	20	20	19	22	20	19	18	19	22	21	22	11	21	22	22	17	22	21	18	18	21	15	19	20	22	20	18	19	22
AAD09269	AAC82936	AAV03801	AAZ22045	AAV39291	AAX77614	AAX77617	AAV12068	AAF55224	AAZ21997	AAV39243	AAT78802	AAV12067	AAF55225	AAZ39628	AAF59062	AAQ04010	AAC55541	AAF26094	AAF26076	AAT58319	AAF26077	AAA51634	AAT69189	AAT69188	AAZ48267	AAQ70942	AAV00679	AAX61041	AAF26078	AAZ21996	AAT78801	AAV39242	AAD04947
pCMV-I-Cre-pA vect	Transdominant effe	Retroviral vector	Nucleotide sequenc	Plasmid pHC6G5 nuc	Expression constru	Expression constru	Murine IAd beta ch	sequ	Nucleotide sequenc	Plasmid pCG7-96 nu	Gamma heavy chain	Murine IAd alpha c	Nucleotide sequenc	DNA sequence of pi	Plasmid pUCM5-6h/3	Plasmid pSUN387.	attR reading frame	Plasmid pMol-fill2	Feline IL-12p40 en			Plasmid pGM712 con	Construct pGEM-hTR	Construct pGEM-hTR	Plasmid pT3NAm1 co	Plasmid pND211 con				+	Kappa light chain	Plasmid pCK7-96 nu	Plasmid pRK50 used

ALIGNMENTS

```
RESULT
AAA74638
Plasmid pSP72; NSE-p25 transgene; p25; cdk5 activator; neuron specific enclase; NSE; promoter; neurodegenerative disease; Alzheimer's disease; Parkinson's disease; amyelolateral sclerosis; Huntington's disease; traumatic brain injury; stroke; transgenic animal;
                                                                                                                                                                                                                                                               05-DEC-2000 (first entry)
                                                                                                                                                                                                                                                                                   AAA74638;
                                                                                                                                                                                                                                                                                                     AAA74638 standard; DNA; 2462 BP
                                                                                                                                                                                                                                           Plasmid pSP72.
                                                                                                                                             EP1026251-A2
                                                                                                                                                                Escherichia coli.
                                                                                                                                                                                 spinocerebellar degeneration; tau hyperphosphorylation;
                                                                                                                                                                                                                                                                                                                       Н
```

```
CC The present sequence is the commercially available plasmid pSP72. The CC SV40 polyadenylation sequence, the rat neuron specific enolase (NSE) promoter and the human cDNA for p25 were cloned into plasmid pSP72 to CC generate the NSE-p25 transgene. This was used in the production of CC transgenic mice overexpressing human p25, an activator of protein kinase CC dk5. Overexpression of p25 is sufficient to produce hyperphosphorylation of tau, which is seen in the neurofibrillary tangles associated with CAlzheimer's disease. The transgenic animals are useful as in vivo systems for screening potential therapeutic compounds for their ability to CC inhibit or prevent the production of hyperphosphorylated tau and associated neuronal death. The transgenic animals are suitable for use as clasease models of neurodegenerative diseases and tau-related pathologies, CC such as Alzheimer's disease, parkinson's disease, amyelolateral CC sclerosis, Huntington's disease, stroke, traumatic brain injury, CC spinocerebellar degeneration. They are also useful as models of cdk5/p25 and tau biochemistry, and to establish the role of the human p25 in the CC formation of hyperphosphorylated tau in neurodegenerative conditions.
       1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1529
                                                                                                       1889
                                                                                                                                                                                                      1829
                                                                                                                                                                                                                                                                                                      1769
                                                                                                                                                                                                                                                                                                                                                                                                        1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1349
                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2462 BP; 623 A; 614 C; 606 G; 619 T; 0 other;
                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alzheimer's-associated neurofibrillary tangle formation
                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                       9ccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                         tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaaat
                                                                                                                                                                                                                        tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                               tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                        ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                       gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cgctcgtcgtttggtattggcttcattcagctccggttccccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1001;
                                                                                                                                                                                               tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                              ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                              gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tgatcccccatgttgtgcaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page 16-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1001; DB 21; Pred. No. 3.4e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                  1948
                                                                                                                                                                                                                                                                                                 1828
                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

밁 δÃ В Qy DЬ δõ

Query Match Best Local

Similarity

100.0%;

Score Pred.

No. 3

DB 22; 3.5e-263;

Qy B

В δÃ Вb ρy DЪ Qy B δÃ В Qy 망 Ş Ъ

```
RESULT 2
AAF59053/c
ID AAF590:
XX AAF590:
XX AAF590:
XX Japane
KW T cell
XX Japane
KW T cell
XX JP2000
XX JP2000
XX JP2000
XX JP2000
XX IS-MAR
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                     The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used in the exemplification of the present invention.
      Sequence 2686 BP; 661 A; 685 C; 675 G; 665 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                      Example 11; Page 61-63; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cryptomeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP2000327699-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Japanese cedar;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Plasmid vector pUC18M5 nucleotide sequence SEQ ID NO:70.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF59053 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-185061/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcgggtgttggcgggtgtcgggctggcttaactatgcggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \verb|caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt|\\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antisugipollinosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2128
```

```
Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                     밁
                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                    Ş
  밁
                            Š
                                                        В
                                                                               ρ
                                                                                                              밁
                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                    901
                                                                                                                 691
                                                                                                                                                                                                                                                       721
                                                                                                                                                                      751
                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cgctcgttcgtttggtatggcttcattcagctccggttccccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1412
gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                        acggtcacagcttgtctgtaagcggatgccggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                   gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                          atttagaaaaataaacaaataggggttocgcgcacatttccccggaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                               tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                          ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCCGTCAGGGCGCGTCA
                                                                                                                TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                              tttcgtctcgcgcgttttcggtgatgacggtgaaaacctctgacacatgcagctcccggag 900
                                                                                                                                                                      GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                             ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                           GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                   TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1292
                                                                                                                                                                                                                                                                                                                                             872
                                                                                                                                                                                                                                                                                                                                                                                                     932
                                                            572
                                                                                                                                                                         692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

RESULT 3 AAV32980/c

```
QΥ
                                            밁
                                                                        Qy
                                                                                                        В
                                                                                                                                   Qy
                                                                                                                                                                  밁
                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                    Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                           from the transposon. The ATP-regulatory protein and compositions are for the efficient, non-specific and simple insertion of a transposon transposable element into a DNA segment. This is useful in DNA sequencing, for genetic analysis by insertional mutagenesis, or for alteration of gene expression by insertion of a desired sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present sequence represents a Tn7 target plasmid pER 183. Transposon Tn7 encodes an ATP-utilising regulatory protein that contains a mutation that allows efficient and simple insertion of, and reduced target site specificity of, a transposable element derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transposon(s) encoding mutant ATP using proteins for insertion - which is efficient and random, with reduced site specificity; for DNA sequencing and altering gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1998-467567/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 W09837205-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insertional mutagenesis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tn7; target plasmid; transposon; ATP-utilising regulatory transposable element; DNA sequencing; genetic analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAV32980 standard; DNA; 3190
                                                                                                                                                                                                                                                                                             2035
                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 11B; 143pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CRAI/) CRAIG
                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        target plasmid sequence
                                           agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                          cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                   CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                   cgctcgtcgtttggtatggcttcattcagctccggttccccaacgatcaaggcgagttaca 180
                                                                                                         TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1916
                                                                                                                                                                                                                                                                                            CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1976
              gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                   BP; 784 A; 808 C; 773 G; 825 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0037955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US03353
                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                       Score 1001; DB 19;
Pred. No. 3.7e-263;
                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                       DB 19;
                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                used
                                                                                                                                                                                                                                                                                                                                                            0;
```

```
RESULT
AAV43439
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
              (HEAL-) HEALTH
                                         26-AUG-1996;
                                                                 26-AUG-1996;
                                                                                              18-AUG-1998
                                                                                                                                                                             prevention; splicing; identification; conditionally-splicing;
                                                                                                                                                                                                                                    DNA sequence of the vector pGEM3-Zf(-).
                                                                                                                                                                                                                                                                                                                     AAV43439 standard;
                                                                                                                                                                                                                                                                                                                                                                                          1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1615
                                                                                                                                                                                                                                                                29-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                     gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                        acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCGTCTCGCGCGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcaccatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCAAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 1676
                                                                                                                                                                                                          extein;
                                                                                                                                                                                                                                                                (first
                                        96US-0702902
                                                                   96US-0702902
                                                                                                                                                                                          n; screening; antimicrobial activity; intein;
element; growth protein; antimicrobial agent
                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                     ΒP
                                                                                                                                                                               SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1616
```

Best Loc Matches Query Match

Local Similarity

100.0%; Score 1001; DB 19; 100.0%; Pred. No. 3.7e-263;

DB 19; Length

1001;

Conservative

0,

Mismatches

0

Gaps

0

```
The present sequence represents the DNA sequence of the vector CC pGEM3-Zf(-), used in the course of the invention. The specification CC describes a method for screening agents for activity against a microbial CC pathogen that has an intein (i.e. a protein-splicing element occurring naturally as an in-frame protein fusion) in a gene that encodes a protein CC that facilitates growth. The method comprises preparing recombinant CC clones of an inducible expression vector containing an altered reporter CC gene, including a silent restriction site, and the intein, and detecting CC the presence of the extein product of the intein by recombinant clones in CC presence of varying concentrations of the agent. Reduced production of the extein product indicates inhibition of the intein, i.e. that the CC agent has antimicrobial activity. The agents of the invention represent CC a new type of antimicrobial agent that prevents splicing out of the intein and thus formation of an active, essential protein. The same CC method is used to identify conditionally-splicing inteins and to study or the intein function.
  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 1; Fig 6B; 64pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Screening agents for antimicrobial activity - by monitoring affect
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1998-466664/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         intein function
  3253 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          intein into reporter gene, also useful for studying
793 A; 817 C; 805 G; 838 T; 0 other;
```

Вb Qy Дb QY В Qy 밁 δÃ 밁 Qy В Qy В Qy Ъ δÃ DЬ δÃ 밁 Ş 1593 tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaaat tetteageatettttaettteaceagegtttetgggtgageaaaacaggaaggeaaaat tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga ccacatagcagaactttaaaaagtgctcattcattggaaaacgttcttcggggcgaaaactt gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggggaaaactc gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 2072 540 2012 1952 420 1832 1652 1892 1712 360 300

```
RESULT 5
AAZ99245/c
ID AAZ992
XX AAZ9922
AC AAZ992
XX PinPoi
XX PinPoi
XX PinPoi
XX PinPoi
XX IT-MAR
XX IS-MAR
XX IS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2253
                                                 The present sequence represents the PinPoint vector, which is used in the course of the invention. The specification describes a method for detecting antibodies against Treponema pallidum. The antibodies are detected in a sample by reaction with a fusion protein antigen, present in the mixture in limiting concentration. The fusion protein antigen comprises a Treponema pallidum membrane antigen. The method is used for diagnosis of syphilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2313
                                                                                                                                                                                                                                                                                Disclosure;
                                                                                                                                                                                                                                                                                                                           Immunoassay for anti-Treponema pallidum antibodies, used for diagnos of syphilis using a fusion protein of membrane antigen with peptide sequence that can be biotinylated in vivo \,\cdot\,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mullenix MC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP985931-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Treponema pallidum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleotide sequence of a PinPoint expression vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAZ99245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAZ99245 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (BECT ) BECTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcacatttcccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000-226057/20
                                                                                                                                                                                                                                                                                Page 8-9; 16pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Deutsch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DICKINSON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0148920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99EP-0115877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              membrane antigen;
                                                                                                                                                                                                                                                                                                                                                                                              for diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              syphilis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SS
```

Sequence

3331

BP;

Α,

854

Ç 885 G; 781

Τ, 0 other

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                 QΥ
                                                             QΥ
                                                                                     В
                                                                                                         Qy
                                                                                                                                Вb
                                                                                                                                                     QΥ
                                                                                                                                                                            밁
                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
 밁
                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1565
                                                                                                                                                                                                                                                                                                                                                           1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1325
                                                                                                                                                                                                                                                                                                                                                                                                       1145
                                                                                                                                                                                                                                                                                                                1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
 605
                                                                                                                                  785
                                                                                                                                                        781
                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1001;
                                                                                                                                                                                                                                                                  agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cgctcgttcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
GCGGGTGTTGGCGGGTGTCGGGGCTTGGCTTAACTATGCGGC
              gcgggtgttggcgggtgtcggggctggcttaactatgcggc
                                                    acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                  tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                  GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                              gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                             ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCCACCTGAC
                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcaccatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                        TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                         tottcagcatottttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaaat
                                                                                                                                                                                                                                                                                                                                                           TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                       tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                        TTTCGTCTCGCGCGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                            ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1001; DB 21;
Pred. No. 3.7e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
   565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1386
                                                                                                                                                                                                                                                                                                                                                                                                          1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                               1026
                                                                                                                                                                                                                                                                                                                                                                                   540
                                                606
                                                                                          666
                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                  966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

```
RESULT 6
AAQ04655/c
ID AAQ046
XX AAQ046
XX AAQ046
XX AAQ046
XX AAQ046
XX Ol-OCT
XX Antibo
FH Key
FT CDS
FT 
  밁
                                      δÃ
                                                                                    В
                                                                                                                           Ω
                                                                                                                                                                        В
                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 1001
  1948
                                                                                        2008
                                                                                                                                                                             2068
                                                                                                                                                                                                                                                                 2128
                                                                                                                                                                                                                                                                                                                                                        2188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmid pBT111 encoding the kappa chain and plasmid AAP10169 encoding the Fd chain of antibody MAK33 were used to transform E.coli DSM 3689 and the resulting cells grown to form inclusion bodies. After the fine renaturation step an 18% yield of biologically-active protein was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Activated antibody prodn. from re
by solubilisation under reducing
carried out at low
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rudolph R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-OCT-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Plasmid p10169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-OCT-1990
                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BOEF ) BOEHRINGER MANNHEIM GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DE3835350-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antibody MAK33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAQ04655 standard;
                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Sin
hes 1001;
                                                                                                                                                                    cgctcgtcgtttggtatggcttcattcagctccggtttcccaacgatcaaggcgagttaca
                    agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact
                                                                               tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                              AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                        1990-156813/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAQ04654.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Buchner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fd chain; plasmid p10169; activated antibody prodn.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product= Fd chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240..91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
240..917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antibody MAK33 Fd chain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lenz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     871 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from recombinant procaryotic cells educing conditions, then oxidative
                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1001; DB 11,
Pred. No. 3.8e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               concn.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     other;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3343;
                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                  1949
                                                                                                                                                                        2009
                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

```
RESULT 7
AAA51632/c
ID AAA516
XX AAA516
XX 31-OCT
DT 31-OCT
XX Uridin
KW Uridin
KW Geneti
KW nucleo
KW nucleo
KW anti-v
OS Escher
OS Synthe
XX Synthe
FH Key
FT misc_R
FT CDS
                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                 Uridine phosphorylase; udp; purine nucleoside phosphorylase; PNP; deoD; Genetically modified organism; catalyst; transglycosylation; nucleoside analogue; alpha-pentose-1-phosphate sugar; phosphorolysis; anti-viral; anti-tumour; mesophilic bacterium; ss.
                                                                                                                                                                                                                                                                                                           1228
                                                misc_RNA
                                                                                 Synthetic.
                                                                                            Escherichia
                                                                                                                                                                           Plasmid pGM678 containing E. coli deoD
                                                                                                                                                                                                    31-OCT-2000
                                                                                                                                                                                                                                                  AAA51632
                                                                                                                                                                                                                                                                                                                                                                                                       1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                         tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtctaagaaaccattattatcatgacattaacctataaaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                        ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                            coli.
                                                                                                                                                                                                  (first entry)
          /*tag= a
/label= p
216..952
                                                1..230
                                                          Location/Qualifiers
                        pUC18_sequence
                                                                                                                                                                             gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1649
                                                                                                                                                                                                                                                                                                                                                                              960
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
```

```
밁
                             Q
                                                                        밁
                                                                                                 Qy
                                                                                                                                            망
                                                                                                                                                                           QV
                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                one or more nitrogen atoms, for preparing alpha-pentose-1-phosphate sugars by phosphorolysis reactions and for producing nucleosides and modified nucleoside analogues (all claimed). The modified or natural nucleosides are used directly or as intermediates in the preparation of drugs with anti-viral and anti-tumour activity and for preparing coligonacleotides for therapeutic or diagnostic use. The recombinant host cells are produced using recombinant plasmid expression vectors comprising at least one gene sequence of a mesophilic bacterium coding for a polypeptide with UdP activity and/or enzyme PNP activity and at least one gene sequence coding for antibiotic resistance. In particular, the E. coli udp and deoD genes are used. Recombinant strains produced using the vectors express polypeptides with enzyme UdP and PNP activity in large amounts, e.g. 340-1040 times higher UdP activity and 120-200 times higher PNP activity than non-transformed corresponding wild type
                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                            Matches
   1988
                                                                                                                                                                                                                  2168
                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3383 BP; 826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             an acceptor base, for preparing nucleoside analogues containing heterocyclic systems with purine and/or pyrimidine bases substituted by one or more nitrogen atoms, for preparing alpha-pentose-1-phosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Host cells genetically modified to express uridine phosphorylase (UdP) and purine nucleoside phosphorylase (PNP) or their corresponding crude or purified extracts, either separately or in combination are used as catalysts of transglycosylation reactions between a donor nucleoside and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 14; Page 47-48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Recombinant expression vectors used to transfor production of e.g. nucleosides encode uridine purine nucleoside phosphorylase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bestetti G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (NORP-) NORPHARMA SPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200039307-A2
                                                                                                         181
                                    241
                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                   cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                      tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                        CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                           cgctcgttcgtttggtatggcttcattcagctccggtttccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2169
                                                                                                                                                                                                                                                                                                                                                           1001;
                                                                    TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                              AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cali's,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98IT-MI02792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99WO-EP10416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product=961..3383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /label= pUC18_sequence
                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                              A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ghisotti D,
                                                                                                                                                                                                                                                                                                                                                                                                                                              868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lacZ-deoD_fused_gene
                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ç
                                                                                                                                                                                                                                                                                                                                                                      Score 1001; DB 21; Pred. No. 3.8e-263;
                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                              855
                                                                                                                                                                                                                                                                                                                                                                                                                                              G; 834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Orsini G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transform cells for the
                                                                                                                                                                                                                                                                                                                                                                                                                                              T; 0
                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           phosphorylase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tonon
                                                                                                                                                                                                                                                                                                                                                                                                                                              other;
                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    crude or
                                                                                                                                          2049
                                 300
                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                       0;
```

```
RESULT 8
AAA51630/c
ID AAA516
XX AAA516
XX AAA516
XX Janeta
DT 31-OCT
XX Uridin
KW Geneti
KW Geneti
KW nucleo
XX nucleo
XX anti-v
OS Escher
OS Synthe
XX Synthe
XX Tieky
FT misc_R
                                                                                                                                                                                                                                                                                                                                                                                                                                                          QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                  Uridine phosphorylase; udp; purine nucleoside phosphorylase; PNP; deoD; Genetically modified organism; catalyst; transglycosylation; nucleoside analogue; alpha-pentose-1-phosphate sugar; phosphorolysis; anti-viral; anti-tumour; mesophilic bacterium; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                              1268
                                                 misc_RNA
                                                                                                                                                                                                                                       Plasmid pGM679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1688
                                                                                                                    Escherichia
                                                                                                                                                                                                                                                                        31-OCT-2000
                                                                                                                                                                                                                                                                                                                                           AAA51630 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGGTGTTGGCGGGTGTCGGGGCTGGCCTTAACTATGCGGC 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                              gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caatattattgaagcatttatcagggttattgtctcatgagcgggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                    coli.
                                                                                                                                                                                                                                                                        (first
                                                                                                                                                                                                                                       containing E. coli udp gene.
/label= pt
216..1013
                             /*tag=
                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                        entry)
                 pUC18_sequence
                                                                                                                                                                                                                                                                                                                                           3444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
```

```
δÃ
                                                     B
                                                                                       Ş
                                                                                                                          DЪ
                                                                                                                                                          Q
                                                                                                                                                                                                 дЬ
                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sugars by phosphorolysis reactions and for producing nucleosides and modified nucleoside analogues (all claimed). The modified or natural nucleosides are used directly or as intermediates in the preparation of drugs with anti-viral and anti-tumour activity and for preparing oligonucleotides for therapeutic or diagnostic use. The recombinant host cells are produced using recombinant plasmid expression vectors comprising at least one gene sequence of a mesophilic bacterium coding for a polypeptide with UdP activity and/or enzyme PNP activity and at least one gene sequence coding for antibiotic resistance. In particular, the E. coli udp and deoD genes are used. Recombinant strains produced using the vectors express polypeptides with enzyme UdP and PNP activity in large amounts, e.g. 340-1040 times higher UdP activity and 120-200 times higher PNP activity than non-transformed corresponding wild type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Host cells genetically modified to express uridine phosphorylase (UdP) and purine nucleoside phosphorylase (PNP) or their corresponding crude or purified extracts, either separately or in combination are used as catalysts of transglycosylation reactions between a donor nucleoside and an acceptor base, for preparing nucleoside analogues containing
                                                                                                                              2169
                                                                                                                                                                                                 2229
                                                                                                                                                                                                                                                                      2289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 14; Page 43-44; 72pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Recombinant expression vectors used to transform cells for the production of e.g. nucleosides encode uridine phosphorylase and/or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200039307-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3444 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  one or more nitrogen atoms, for preparing alpha-pentose-1-phosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     heterocyclic systems with purine and/or pyrimidine bases substituted by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   purine nucleoside phosphorylase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bestetti G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (NORP-) NORPHARMA SPA
                                                                                         181
                                                                                                                                                              121
                    241
                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                       1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                  agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                               cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                        CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000-452402/39.
                                                       TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                            tgatcccccatgttgtgcaaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                            CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 2170
                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cali's,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99WO-EP10416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= b
/product= lacZ-udp_fused_gene
1022..3444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /label=
                                                                                                                                                                                                                                                                                                                                                                                                                                820 A;
                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ghisotti D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pUC18_sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                  881 C;
                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                            Score 1001;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                  887
                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Orsini
                                                                                                                                                                                                                                                                                                                                                                                                                                  856 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                             3.8e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ġ
                                                                                                                                                                                                                                                                                                                                                                              DΒ
                                                                                                                                                                                                                                                                                                                                                                            21;
                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tonon
                                                                                                                                                                                                                                                                                                                                                                            Length 3444;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             o,
                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                         Gaps
                                                         2050
                                                                                                                              2110
                                                                                           240
                                                                                                                                                                                                                                                                                                                                             0
```

```
QΥ
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω<sub>V</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
밁
                                                                                                                                                                                                                                                                                                                                          1329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2049 AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1990
                                                                                                Synthetic
                                                                                                                                      Ig; affinity constant; human; antigen; hybridoma; B cell; transgene;
transgenic; mouse; CD4; antibody; autoimmune; inflammatory;
                                                                                                                                                                                                             23-JAN-1998
                                                                                                                                                                                                                                                                    AAT78825 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1749
10-OCT-1996;
                            17-APR-1997
                                                      WO9713852-A1
                                                                                 Homo sapiens
                                                                                                                         transplant rejection;
                                                                                                                                                                                Kappa light chain plasmid pLC6G5
                                                                                                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                       gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGAGTAGTCAACCAAGCCATCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                        GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 1289
                                                                                                                                                                                                                                                                                                                                                                                                               acggtcacagcttgtctgtaagcggatgccgggaggcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttcgtctcgcgcgtttcgggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                             (first entry)
96WO-US16433.
                                                                                                                                                                                                                                                                      DNA;
                                                                                                                          immunoglobulin;
                                                                                                                                                                                                                                                                      3819
                                                                                                                                                                                                                                                                      ВP
                                                                                                                             SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1570
```

```
В
                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                Вp
                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                             Q
                                                                                                 밁
                                                                                                                           δÃ
                                                                                                                                                                                                                                 뫄
Š
                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A novel composition has been developed which comprises an immunoglobulin (Ig) having an affinity constant (Ka) of at least 2 multiply 1000000000 M-1 for binding to a predetermined human antigen. The present sequence represents the kappa light chain plasmid pLC6G5 which includes the kappa constant region and polyadenylation site. Anti-CD4 antibodies may be used in therapeutic and diagnostic applications, especially for the treatment of human diseases. These antibodies reduce activity of CD4 cells and reduce undesirable autoimmune reactions, inflammatory response and transplant rejection. Transgenic animals are capable of producing heterologous antibodies of multiple isotypes by undergoing isotype switching. These animals produce a first Ig type that is necessary for antigen-stimulated B-cell maturation and can switch to encode and produce one or more subsequent heterologous
                                                                                                                                                                                                                                                                                                    1396
                                                                                                                                                                                                                                                                                                                                                                   1336
                                  1636
                                                                                                   1576
                                                                                                                                                                 1516
                                                                                                                                                                                                                                  1456
                                                                                                                                                                                                                                                                                                                                                                                                                                    1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3819 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GENP-) GENPHARM INT INC
                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                 481
                                                                                                                                    421
                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                                                                                                                                                                                                                                                                                                   tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                  cyctcytcytttygtatyycttcattcayctccygttcccaacyatcaagycgayttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1001;
                                                                                                                                                                                                                                                  gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                   ccacatagcagaactttaaaaagtgctcattattggaaaacgttcttcggggcgaaaactt
                                                                                                                                                                 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                               gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               anti-CD4 antibody produced by transgenic mice ment of auto-immune disease etc.
                                                 tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                 ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                 tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42; Page 266-268; 396pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95US-0544404.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; 1015 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1001; DB 18;
Pred. No. 3.9e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               945 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                     1455
                                                                                                     1635
                                                                                                                                     480
                                                                                                                                                                    1575
                                                                                                                                                                                                                                      1515
                                                                                                                                                                                                                                                                                                                                                                     1395
                                                                                                                                                                                                                                                                                                                                                                                                                                    1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
```

```
RRESULT 1
AND 39266
ID AAVY
XX AAV3
AC AAV3
XX BAW ison
XX Trar
XX Trar
XX Trar
XX W autc
XX Syni
OS Syni
OS Syni
OS Homm
OS Hom
XX ARD
PR 01-1
YX OS-1
PF 01-1
YX Trar
YX Trar
YX Hom
XX Trar
YX WO91
XX WO91
XX WO91
XX Trar
YX WO91
XX WO91
XX Trar
YX WO91
XX WO91
XX Trar
YX Trar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transgenic animal; human heterologous antibody; transgene; isotype switching; neutrophil efflux; reperfusion injury; CD4 binding; autoimmune reaction; inflammatory response; transplant rejection; acid induced lung injury; acute adult respiratory distress syndrome; ARDS; vasculitis; septic shock; allergic reaction; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1996
                                                                                                                                       Hybridoma producing antibody specific for interleukin-8 -prevent efflux of neutrophils from vasculature, and treat
                                                                                                                                                                                                                                                                                                                                                                                                     02-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cystic fibrosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmid pLC6G5 nucleotide sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAV39266 standard;
                                                             Example 42;
                                                                                                                  reperfusion injury
                                                                                                                                                                                                                                   WPI; 1998-333306/29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gcgggtgttggcgggtgtcggggttggcttaactatgcggc 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtctaagaaaccattattatcatgacattaacctátaaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           acggtcacagcttgtctgtaagcggatgccggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acggtcacagcttgtctgtaagcggatgccgggagcagaccagcccgtcagggcggtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                                                GENPHARM INT
                                                                                                                                                                                                                                                                                     Lonberg N;
                                                             Pages 317-319; 452pp; English
                                                                                                                                                                                                                                                                                                                                                                                                        96US-0758417
                                                                                                                                                                                                                                                                                                                                                                                                                                                             97WO-US21803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                                                                                             used
                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2055
```

present sequence

represents a plasmid,

pLC6G5, which

contains

```
Trearranging a heterologous diversity (D) gene in a
C variable-diversity-junction (V-D-J) recombination. The transgenes
C include a heavy chain transgene comprising at least one V, D and J gene
C segment, and one constant region gene segment. The immunoglobulin (Ig)
C light chain transgene comprises at least one V and J gene segment and one
C constant region gene segment. The segment and one
C constant region gene segment. The gene segment afflux of
C transgenic animal. The antibody can be used to prevent efflux of
C neutrophils from vasculature. It can also be used to treat reperfusion
C injury. CD4 binding antibodies are used to reduce undesirable autoimmune
C reactions, inflammatory responses and rejection of transplanted organs.
C The anti-IL-8 antibodies can reduce tissue damage and prolong survival
C acid induced lung injury. The anti-IL-8 antibodies can also be used for
C the treatment of vasculitis, septic shock, allergic reactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                1576
                                                                                                                                                                                                                                                                                                                                                    1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   synthetic kappa light chain sequence (created using oligonucleotide AAV39244-65). This synthetic sequence differs from natural sequences in that strings of repeated oligonucleotides are interrupted (to facilitate oligonucleotide synthesis and PCR amplification), optimal translation initiation sites are incorporated and HindII sites were engineered upstream of the translation initiation sites. The plasmid is used in the construction of minigenes for expression of IgKappa anti-CD4 antibodies, in the transgenic mouse of the invention. The specification describes transgenic non-human animals, especially a mouse, which are capable of producing a human heterologous antibodies of multiple isotypes by undergoing isotype switching. The transgenic animals have human heavy and light chain transgenes. The transgenes are capable of functionally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1216
             541
                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 3819 BP; 947 A; 1015 C; 912 G; 945
                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (e.g. asthma) and cystic fibrosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaacaggaaggcaaaat
                                                              tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                        ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                         gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                  ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                      gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agtaagttggccgcagtgttatcactcatggttattggcagcactgcataattctcttact
                                                                                                                                   tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cgctcgtcgtttggtatggcttcattcagctcoggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgatcccccatgttgtgcaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 1001; DB 19;
Pred. No. 3.9e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 3819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                      1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1395
                                                                                                                                                                                                         1635
                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 one
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

QΥ В 8

Qy Вb Qy В Q В Q В Ş

The specification describes transgenic animals that are capable of producing a heterologous antibody. The antibodies are isolated form a hybridoma, comprising B cells, that is obtained from a transgenic mouse having a genome comprising a human heavy chain transgene and a human light chain transgene. The B cells are fused to immortalized cells

Š БР οy В QΥ 밁

밁

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вр
                                                                                                                             Novel transgenic non-human animals used to
                                                                                                                                                         WPI; 1999-551219/46
                                                                                                                                                                                                                                                                                                                                                                                                Transgenic animal; heterologous antibody; hybridoma; B cell; transgenic mouse; human heavy chain transgene; digoxin; human light chain transgene; immortalized cell; immunoglobulin; Shinga-like toxin; autoimmune disease; cancer; infectious disease;
                                                                                   Example 42;
                                                                                                                                                                                                                                               13-MAR-1998;
                                                                                                                                                                                                                                                                        12-MAR-1999;
                                                                                                                                                                                                                                                                                                      16-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAZ22020 standard; DNA; 3819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2116
                                                                                                                                                                                                                  (GENP-) GENPHARM INT INC
                                                                                                                                                                                                                                                                                                                                                                                     transplant rejection; blood disorder; coagulation disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-NOV-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1696 tetteageatettttaettteaeeagegtttetgggtgageaaaaaeaggaaggeaaaat 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcgggtgttggcgggtgtcgggctggcttaactatgcggc 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acggtcacagcttgtctgtaagcggatgccgggaggacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atttagaaaaataaacaaataggggttccgcgcaccatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                      z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence of plasmid pLC6G5
                                                                                Page 318-320; 484pp; English
                                                                                                                                                                                      Fishwild DM,
                                                                                                                                                                                                                                               98US-0042353
                                                                                                                                                                                                                                                                         99WO-US05535
                                                                                                                                                                                      Ball WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΒP
                                                                                                                            produce heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
```

```
888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                          рь
                                                                                                                                                              Qγ
                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                    ΩV
                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                      В
               Ş
                                                       В
                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antibodies. Antibodies produced from the transgenic animals of the invention can be used to treat human diseases, e.g. autoimmune diseases, cancer, infectious disease, transplant rejection, blood disorders such as coagulation disorders and other diseases. The present sequence is used in the course of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 suitable for generating a hybridoma, which produces a detectable amount of an immunoglobulin that specifically binds digoxin or shinga-like toxin. B cells from transgenic animals can be used to generate hybridomas expressing monoclonal high affinity human sequence
                                                                                                                                  1816
                                                                                                                                                                                                          1756
                                                                                                                                                                                                                                                                                     1696
                                                                                                                                                                                                                                                                                                                                                               1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3819 BP; 947 A; 1015 C; 912 G; 945 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
781 gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    agttegecagttaatagtttgegeaacgttgttgecattgetacaggeategtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gaatagtgtatgcggccgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 1215
                                                                           atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                  caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                            gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                   tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                               tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                  caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                        gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                 tetteageatettttaettteaecagegtttetgggtgageaaaacaggaaggeaaaat
                                                                                                                                                                                                                                                                                                                                                               tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                        ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1001; DB 20;
Pred. No. 3.9e-263;
); Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                              1815
                                                                                                                                                                                                                                                                                                                                                                                                                                            1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1515
                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

В

1936

gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc

Sequence 3858

BP;

943 A;

959 C;

994 G;

962

17

0 other;

```
RESULT 12
AAD04947/c
ID AAD049
XX AAD049
XX AAD049
XX AAD049
XX AAD049
XX Feed Plasmi
XX Gene t
XX Chimer
OS Chimer
OS Chimer
XX Nevo2001
XX Chimer
XX Nevo2001
XX Nevo2001
XX Nevo 16-0C1
XX The px CC Capabil
CC Capabil
CC Capabil
CC croonstr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                           inserted in antisense orientation relative to the transcriptional orientation of the gene to be trapped. The other DNA segment (selection cassette) is inserted in sense direction relative to the transcriptional orientation of the gene to be trapped. The cell comprising the gene trapping construct is useful for the identification and/or isolation of genes. The transgenic organism comprising the gene trapping construct is useful to study gene function at various developmental stages. The gene trapping construct is useful for mutationally inactivating all cellular genes. The present sequence is pRK50 vector, which is used to test Cre
                                                                                                                                                                                                                                                                                                                capable of causing conditional mutations in genes. The gene trapping construct comprises two functional DNA segments, each being flanked two recombinase recognition sequences (RRSs) specific to site specific tecombinase which is capable of unidirectional inversion of double standard DNA segment. One of the DNA segment (disruption cassette) is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chimeric - Adenovirus.
Chimeric - Unidentified.
Chimeric - ECMV virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plasmid pRK50 used to test Cre recombinase mediated inversion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 3; Page 73-74; 78pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-OCT-1999;
27-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200129208-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    recombinase recognition sequence; RRS; disruption cassette; selection cassette; transgenic organism; pRK50; Cre recombi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAD04947 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (FRAN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-OCT-2000;
                                                          recombinase mediated inversion, which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ARTE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene trapping construct capable of causing conditional mutations es, comprises functional DNA segment inserted in sense or antisens
                                                                                                                                                                                                                                                                                                                                                                                                                                                           present invention relates to a conditional gene trapping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 trapping construct; conditional mutation; unidirectional inversion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gcgggtgttggcgggtgtcgggctggcttaactatgcggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gegggtgttggegggtgtcggggctggcttaactatgeggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgctca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ARTEMIS PHARM GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FRANKGEN BIOTECHNOLOGIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   relative to gene to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Von Melchener H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-EP10162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99EP-0120592
99US-0162016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Altschmied
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   trapped
                                                          is related to the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cre recombinase;
                                                                                                                                                                                                                                                                                                                                                                             ing flanked by site specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2055
```

Query Match

DB 22;

Length 3858;

```
밁
                                                                                                                                                   δÃ
                                                                                                                                                                                    В
                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1001;
                                                                                                                           1595
                                                                                                                                                                                      1655
                                                                                                                                                                                                                                                 1715
                                                                                                                                                                                                                                                                                                            1775
                                                                                                                                                                                                                                                                                                                                                                                                                                  1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2075
                                                                                                                                                                                                                                                                                                                                                                         1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2255
                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2435
                                                                                           901
                                                                                                                                                       841
                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
GCGGGTGTTGGCGGGTGTCGGGGCTTAACTATGCGGC
               909991911990999191099990199011aactatgcggc 1001
                                                                         acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                               ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                      TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                    tttcgtctcgcgcgttttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                              9CCgCaaaaaagggaataagggCgacaCggaaatgttgaataCtCataCtCttCcttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                               tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagggaaggcaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                         caatattattgaagcatttatcagggttattgtctcatgagcgggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cyctcytcytttyytatyycttcattcayctccyyttcccaacyatcaaygcyayttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2376
                                                                                                                                                                                                                                              ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                         CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT 1716
                                                                                                                                                                                                                                                                                                                                                                      GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                               TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT 1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 2076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 2136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1001; DB 22;
Pred. No. 3.9e-263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                            1476
                                                                                                                      1536
                                                                                                                                                                                   1596
                                                                                                                                                                                                                                                                                                                                                                      1776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

밁 Qy Вb δÃ

Ş

1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60

Matches

1001;

Conservative

0;

Mismatches

0,

Indels

0 Gaps

0

Local Similarity

100.0%;

Score 1001; DB 19; Length Pred. No. 4e-263;

```
The present sequence represents the kappa light chain plasmid, pCK7-96, CC which includes the kappa constant region and polyadenylation site. The plasmid is used in the construction of minigenes for expression of CC Igokappa anti-CD4 antibodies, in the transgenic mouse of the invention. CT he specification describes transgenic non-human animals, especially a CC mouse, which are capable of producing a human heterologous antibodies of CC multiple isotypes by undergoing isotype switching. The transgenic animals have human heavy and light chain transgenes. The transgenes are capable CC of functionally rearranging a heterologous diversity (D) gene in a CC variable-diversity-junction (V-D-J) recombination. The transgenes include a heavy chain transgene comprising at least one V, D and J gene segment, CC and one constant region gene segment. The immunoglobulin (Ig) light chain CC region gene segment at least one V and J gene segment and one constant cc animal. The antibody can be used to prevent efflux of neutrophils from CC animal. The antibody can be used to prevent efflux of neutrophils from CC inflammatory responses and rejection of transplanted organs. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
Sequence 3880
                                                         anti-IL-8 antibodies can reduce tissue damage and prolong survival in animal models of acute adult respiratory distress syndrome (ARDS) and acid induced lung injury. The anti-IL-8 antibodies can also be used for the treatment of vasculitis, septic shock, allergic reactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  isotype switching; neutrophil efflux; reperfusion injury; CD4 binding; autoimmune reaction; inflammatory response; transplant rejection; acid induced lung injury; acute adult respiratory distress syndrome; ARDS; vasculitis; septic shock; allergic reaction; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hybridoma producing antibody specific for interleukin-8 prevent efflux of neutrophils from vasculature, and trea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        reperfusion injury
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1998-333306/29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9824884-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cystic fibrosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transgenic animal; human heterologous antibody; transgene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plasmid pCK7-96 nucleotide sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-DEC-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAV39242 standard; DNA; 3880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sapiens.
                                        asthma) and cystic fibrosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENPHARM INT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lonberg N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pages 310-312; 452pp; English
BP; 981 A; 1013 C; 921 G; 965 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96US-0758417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97WO-US21803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ЧB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ť
```

```
γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                           QΥ
                                                              망
                                                                                      δÃ
                                                                                                                              B
                                                                                                                                                           Qγ
                                                                                                                                                                                              ф
                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                        ρy
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1156
 2116
                                                                                                                                                                                                                                                                                                                                                                                                  1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1456
                                                                                                                                 1996
                                                                                                                                                                                                1936
                                                                                                                                                                                                                                                                1876
                                                                                                                                                                                                                                                                                                                                1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgctcgttcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
               gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                              gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                              atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                 atttagaaaaataaacaaataggggttccgcgcacatttccccggaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                 caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                gccgcaaaaaaggggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                                                                                                                 tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgatcccccatgttgtgcaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
gcgggtgttggcgggtgtcgggctggcttaactatgcggc
                                                                                                                                               tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                              caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                 acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                    1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                   1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
```

RESULT
AAT78801
ID AAT
XX
AC AAT
XX

AAT78801 standard;

ВP

AAT78801

```
Qγ
                                                                                         망
                                                                                                                    Qy
                                                                                                                                                  밁
                                                                                                                                                                             γ
                                                                                                                                                                                                            В
                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                 Qy
Q
                             밁
                                                                                                                                                                                                                                                                                                                                 Matches 1001;
                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                A novel composition has been developed which comprises an immunoglobulin (19) having an affinity constant (Ka) of at least 2 multiply 1000000000 M-1 for binding to a predetermined human antigen. The present sequence represents the kappa light chain plasmid pCK7-96 which includes the kappa constant region and polyadenylation site. Anti-CD4 antibodies may be used in therapeutic and diagnostic applications, especially for the treatment of human diseases. These antibodies reduce activity of CD4 cells and reduce undesirable autoimmune reactions, inflammatory response and transplant rejection. Transgenic animals are capable of producing heterologous antibodies of multiple isotypes by undergoing isotype switching. These animals produce a first Iq type that is necessary for antigen-stimulated B-cell maturation and can switch to encode and produce one or more subsequent heterologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9713852-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transplant rejection; immunoglobulin; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kappa light chain plasmid pCK7-96
                                                                                                                                                                                                            1216
                                                                                                                                                                                                                                                                          1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel anti-CD4 antibody produced by transgenic treatment of auto-immune disease etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1997-235888/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transgenic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 42; Page 260-262; 396pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GENP-)
                                                                                                                                                     1276
                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3881 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                         isotypes.
                                                                                                                       181
                                                                                                                                                                                 121
                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                      affinity constant; human; antigen; hybridoma; B cell; transgene
                                                                                                                                                                                                                            agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                             agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                            agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                         tgatcccccatgttgtgcaaaaaagcggttagctccttcggttcctccgatcgttgtcaga
                                                                                                                                                  cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                  cgctcgttcgttttggtattggcttcattcagctccggtttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                              agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENPHARM INT INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mouse; CD4; antibody; autoimmune; inflammatory;
                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95US-0544404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96WO-US16433
                                                                                                                                                                                                                                                                                                                                                                                                            981 A; 1014 C;
                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                  Score 1001; DB 1
Pred. No. 4e-263;
Mismatches C
                                                                                                                                                                                                                                                                                                                                                                                                            921 G;
                                                                                                                                                                                                                                                                                                                                                                                                              965
                                                                                                                                                                                                                                                                                                                                                                DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                              T; 0 other;
                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mice
                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      used
                                                                                                                                                                                                                                                                                                                                                                   3881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                            1395
                                  1455
                                                                                                                                                       1335
                                                                                                                                                                                                                  1275
                                                                300
                                                                                                                          240
                                                                                                                                                                                     180
```

0;

```
RESULT :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω<sub>γ</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
13-MAR-1998;
                                                                                                WO9945962-A1
                                                                                                                                                                            transgenic mouse; human heavy chain transgene; digoxin; human light chain transgene; immortalized cell; immunoglobulin; Shinga-like toxin; autoimmune disease; cancer; infectious disease;
                                                                                                                                                                                                                 Transgenic animal; heterologous antibody; hybridoma; transgenic mouse; human heavy chain transgene; digox:
                                                                                                                                                                                                                                                                                                                                                                      AAZ21996 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         2116
                               12-MAR-1999;
                                                                                                                                                                transplant rejection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1876
                                                                16-SEP-1999
                                                                                                                                                                                                                                                                Nucleotide sequence of plasmid pCK7-96
                                                                                                                                                                                                                                                                                                     24-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcgggtgttggcgggtgtcgggctggcttaactatgcggc 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcgggtgttggcgggtgtcggggcttgcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggggaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccgcaaaaaaggggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaacaggaaggcaaaat 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tetteageatettttaettteaceagegtttetgggtgageaaaaacaggaaggeaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                             99WO-US05535
                                                                                                                                                                                                                                                                                                                                                                    DNA;
                                                                                                                                                             blood disorder; coagulation disorder; ss
                                                                                                                                                                                                                                                                                                                                                                      3881
                                                                                                                                                                                                                               B cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
```

```
generate hybridomas expressing monoclonal high affinity human sequence antibodies. Antibodies produced from the transgenic animals of the invention can be used to treat the diseases, e.g. autoimmune diseases, cancer, infectious disease, transplant rejection, blood disorders such as coagulation disorders and other diseases. The present sequence is used in the course of the invention.
                                                                                                                                                                   suitable for generating a hybridoma, which produces a detectable amount of an immunoglobulin that specifically binds digoxin or Shinga-like toxin. B cells from transgenic animals can be used to
                                                                                                                                                                                                                               hybridoma, comprising B cells, that is obtained from a transgenic mouse having a genome comprising a human heavy chain transgene and a human light chain transgene. The B cells are fused to immortalized cells
  Sequence 3881 BP; 981 A; 1014 C; 921 G;
                                                                                                                                                                                                                                                                                               The specification describes transgenic animals that are capable of producing a heterologous antibody. The antibodies are isolated for
                                                                                                                                                                                                                                                                                                                                                                                                                            Novel transgenic non-human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lonberg N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GENP-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENPHARM INT
                                                                                                                                                                                                                                                                                                                                                              Page 311-313; 484pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fishwild DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ball WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                       animals used to produce heterologous
965 T; 0 other;
                                                                                                                                                                                                                                                                                                  form a
```

QY В Qy 밁 QУ Вb Qy Qy Q В В Qy B Ş В 밁 QΥ 멍 Qγ Query Match Best Local Matches 1001; 1576 1516 1336 1216 1156 181 tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 61 Local Similarity tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 600 tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga agtaagttggccgcagtgttatcactcatggttatggcagcagcagcataattctcttact tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga ccacatagcagaactttaaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 1215 100.0%; ilarity 100.0%; Conservative 0; 0; Score 1001; DB 2 Pred. No. 4e-263; Mismatches DB 20; 0; Length 0, Gaps 1695 1575 1635 1515 300 1395 1335 180 120 240 1275 0;

멍

1696

tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 1755

	2116 gcgggtgttggcgggttgggcttaactatgcggc 2156	Db
	961 gcgggtgttggcgggttgggcttggcttaactatgcggc 1001	Qy
2115	Ω -	Db
960	901 acggtcacagcttgtctgtaagcggatgccggtgagcagacaagcccgtcagggcgcgtca (Qy
2055		Db
900	841 tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag (Qy
1995		Db
840	781 gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 8	Qy
1935		DЬ
780	721 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac	Qy
1875	1816 caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 1	Db
720		Qy
1815	1,-	DЬ
660	601 gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt (Qy

Search completed: January 17, 2002, 16:33:16 Job time: 12501 sec

•			
•			
•			
		•	
	·		

```
Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                 000000
                                                                                                                                                                0000000
                                                                       O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                on :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score
  10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
10001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Issued_Patents_NA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                        100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               January 17, 2002, 16:26:40; Search time 118.22 Seconds (without alignments) 1917.649 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-740-211-13_COPY_6000_7000
1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  351203 segs, 113238999 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cctgcaactttatccgcctc......ggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6A_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/BCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/Dackfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
    33104
33104
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
3314
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
3314
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33143
33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DΒ
US-09-039-762A-27

US-09-042-353-369

US-08-78-417A-217

US-09-039-982A-30

US-09-039-762A-30

US-09-039-762A-24

US-09-039-641-24

US-09-039-762A-24

US-09-039-762A-24

US-09-039-762A-24

US-08-795-430-3

US-08-795-430-3

US-08-99-024-6

US-08-99-024-6

US-08-99-024-6

US-08-99-333-279-6

US-08-99-957-15

US-08-929-967-15

US-08-928-967-15

US-08-758-417A-218

US-09-042-353-418
                                                                                                                                                                                                                                                                                                                                                                                                     US-09-042-353-393

US-08-758-417A-243

US-09-039-982A-21

US-09-039-641-21

US-09-039-64A-21

US-09-039-62A-27

US-09-039-982A-27

US-09-039-641-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-07-415-307A-1
US-08-371-320-1
5453363-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                           Patent No. 545363
Sequence 243, App
Sequence 21, Appl
Sequence 21, Appl
Sequence 21, Appl
Sequence 27, Appl
Sequence 30, Appl
Sequence 24, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                        sequence
sequence
sequence
sequence
sequence
sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Appli
Sequence 1, Appli
Sequent No. 5453363
    Sequence
  3, Appli
6, Appli
6, Appli
15, Appl
370, App
218, App
418, App
```

US-07-415-307A-1

TANDAR TO THE TA	م م م
RESULT 1 US-07-415-3 Sequence Patent No GENERAL APPLIC CORREE ADDI STAN COURTE APPLIC CORPO MEDI CORREE APPLIC APPLIC APPLIC APPLIC APPLIC APPLIC CORREE APPLIC APP	00000000000000000000000000000000000000
T 1 -415-307A-1 uence 1, Applicant No. 534475 NERAL INFORMAT APPLICANT: Sc. APPLICANT: Sc. APPLICANT: Sc. APPLICANT: Ma TITLE OF INVENI NUMBER OF SEQU CORRESPONDENCE ADDRESSEE: STREET: 805 CIFY: New Y. STATE: New	
E-H4CQQQQC B BROKE B BROKE B B B B B B B B B B B B B B B B B B B	
n US. Han Rudo Rudo Rudo Rudo Rali Rali Rali Rali Rali Rali Rali Rali	511580 51
S/0741: S/0741: S/0741: olf udrun ans hristo lf s rocess rocess ct Lynch venue US/07 09 09 09 09 09 09 09 09 09 09 09 09 09	4 8 6 8 4 6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	US-08-758-417A-268 US-08-789-333F-58 US-08-929-967-16 US-08-901-344-5 US-09-498-599-5 US-08-793-610-2 US-08-793-610-1 US-08-793-610-4 US-09-011-745-8 US-09-011-745-6 US-09-011-745-6 US-09-011-745-6 US-09-011-745-6 US-08-93-327-17 US-08-893-327-17 US-08-893-327-17 US-08-893-327-19 US-08-893-328-19 US-08-893-328-19 US-08-893-328-19 US-08-893-328-19 US-08-893-328-19 US-08-893-328-
Nucleic Acids	Sequence 268, Appli Sequence 58, Appli Sequence 5, Appli Sequence 5, Appli Sequence 3, Appli Sequence 2, Appli Sequence 2, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 6, Appli Sequence 5, Appli Sequence 17, Appli Sequence 19, Appli Sequence 1, Appli

```
Qy
                                                                      Дb
                                                                                                   QΥ
                                                                                                                                            DЪ
                                                                                                                                                                         Qy
                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 1001;
 2509
                                                                                                                                             2389
                                                                                                                                                                                                                2329
                                                                                                                                                                                                                                                                                    2269
                                                                                                                                                                                                                                                                                                                                                          2209
                                                                                                                                                                                                                                                                                                                                                                                                                              2149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1969
                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1609 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1549 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1608
                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC
                gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                      acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca
                                                                                                                                                          tttcgtctcgcgcgtttcgggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840
                                                                                                                                                                                                                                                                                                                                                                                                                       TTTCGTCTCGCGCGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                   atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                     caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gaatagfgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                  ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCCGCGTCA
                                                                                                                                                                                                            GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                  ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                     CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGGGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaacccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA 2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC 2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%; Score 1001; DB 1; 100.0%; Pred. No. 2.1e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
 2549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                        2448
                                                                                                                                                                                                            2388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
ρ
                                            B
                                                                           Qy
                                                                                                                        B
                                                                                                                                                           δÃ
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                US-08-371-320-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-371-320-1
                                                                                                                                                                                                                                                                                Matches 1001;
                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/08371320 Patent No. 5702888 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/415,307
FILING DATE: 09-Jan-1990
APPLICATION NUMBER: PCT/EP89/0026
FILING DATE: 12-Jan-1989
APPLICATION NUMBER: DE 38 00 642.1
FILING DATE: 12-Jan-1988
APPLICATION NUMBER: DE 38 13 278.8
FILING DATE: 20-Apr-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: 1:
                                        1669 CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1728
                                                                                                                      1609 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCCATTGCTACAGGCATCGTGGTGTCA 1668
                                                                                                                                                                                                  1549 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Hanson, No. 5702888man D.
REGISTRATION NUMBER: 30,946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Wordperfect CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Kessler, Christoph APPLICANT: Mattes, Ralf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Schmitz, Gudri
APPLICANT: Scholer, Hans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Process for the Detection of Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                           121 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
181 tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                           61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
TOPOLOGY: lir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUIEN.

OPERATING SYSTEM: PC/I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/0 FILING DATE: 11-JAN-1995 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: New York City
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 10022
                                                                                                                                                                                                                    1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                               : 3104 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     805 Third Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212-838-3884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schmitz, Gudrun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Holtke,
                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seibl, Rudolf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       212-688-9200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Felfe & Lynch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Diskette, 5.25 inch,
                                                                                                                                                                                                                                                                                                                                                                                                                    single
                                                                                                                                                                                                                                                                           100.0%; Score 1001; DB 1; Length 3104; 100.0%; Pred. No. 2.1e-301; 7ative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hans Joachim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PC/DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360 kb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Acids
                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                             Gaps
```

0,

;SEQ ID NO:2:

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
.. .. .. .. .. .. .. .. .. ..
                                                                                                                                                           RESULT 3
5453363-2/c
;Patent No. 5453363
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                            ING
                                                                                                  APPLICANT: RUDOLPH, RAINER; FISCHER, STEPHAN; MATTES, RAI
TITLE OF INVENTION: PROCESS FOR THE ACTIVATION OF T-PA
AFTER GENETIC EXPRESSION IN PROKARYOTES
NUMBER OF SEQUENCES: 4
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1909
                                                                                                                                                                                                                                                                  2449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2089
                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: 942,370
FILING DATE: 09-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                           961
APPLICATION NUMBER: 498,500
FILING DATE: 23-MAR-1990
APPLICATION NUMBER: 76,207
FILING DATE: 23-OCT-1986
                                                                             APPLICATION NUMBER: US/
FILING DATE: 02-MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                    atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                              gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                               acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                         tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                         CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                    GCGGGTGTTGGCGGGTGTCGGGCTTGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                  ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                           US/08/206,
                                                                                           044
                                                                                                                                                                                                                       2549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                               2388
                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                             2328
                                                                                                                                                                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                  2448
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                    ρy
                                                                                                                                                                                                                                                                                                                                                                                                                        Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5453363-2
                                                                                                                                                                                                          Q
                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                               밁
                 δÃ
                                   Вb
                                                     δÃ
                                                                         DЪ
                                                                                          Qy
                                                                                                               Вþ
                                                                                                                                 Qy
                                                                                                                                                    Дb
                                                                                                                                                                     δÃ
                                                                                                                                                                                         망
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                           1768
                                                                                                                                                                                                                                                                                                                                                 1828
                                                                                                                                                                                                                                                                                                                                                                                      1888
                                                                                                                                                                                                                                                                                                                                                                                                                            1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2008
                                                                                                                                                                                                                              1648
                                                                          1408
                                                                                                                                                                                           1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctaggtaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cgctcgtcgtttggtatggcttcattcagctccggtttcccaacgatcaaggcgagttaca
CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                           gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTCGTCTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                      TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                              tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                               atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                          GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                 gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                         tottoagoatottttaotttoacoagogtttotgggtgagoaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                      TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                              tcaaggatettacegetgttgagatecagttegatgtaacecactegtgcacecaactga
                                                                                                                                                                                                                                                                                                                                               GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1001; DB o, Pred. No. 2.2e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                     600
                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                   1769
                                                                                                                                                                                                                                                                                                                                                                                         1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2069
                                                                                                                                                                                                                                                                         1649
                                                                                                                                                                                                                                                                                                              1709
                                                                                                                                                                                                                                                                                                                                                                                                                              1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                             1529
                                                                                                                                                                                                                                                                                           540
                                                                                                                  1409
                                                                                                                                                        1469
                                                                                                                                                                          720
                                         1289
                                                                              1349
                                                                                                840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-042-353-393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 393, Application US/09042353 Patent No. 6255458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENERAL INFORMATION.

APPLICANT: Lonberg, Nils

APPLICANT: Kay, Robert M.

PROBLICANT: Kay, Robert M.

TITLE OF INVENTION: Transgenic No. 6255458-Human Animals for

TITLE OF INVENTION: Producing Heterologous Antibodies

TITLE OF SEOUENCES: 421
                                  PRIOR APPLICATION DATA:
                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 26-APR-1993 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 16-DEC-1992 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/810,279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                            FILING DATE:
                                                                                                                                                                    APPLICATION NUMBER: US U
FILING DATE: 07-DEC-1994
                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 0 FILING DATE: 10-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                  APPLICATION NUMBER:
                                                          FILING DATE:
                                                                        APPLICATION NUMBER:
                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/161,739 FILING DATE: 03-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 01
FTLING DATE: 18-NOV-1993
                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 22-JUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 0'
FILING DATE: 23-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 13-MAR-1998
CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 07/853,408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: Two Embarcac
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 1188
  DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Two Embarcadero Center, Eighth Floor
                                                                                                                10-OCT-1995
                                                                                                                                                                                                                              09-MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Floppy disk
MBER: WO PCT/US96/16433
10-OCT-1996
                                                        10-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-DEC-1991
                                                                        US 08/728,463
                                                                                                                              US 08/544,404
                                                                                                                                                                                                                                                  US 08/209,741
                                                                                                                                                                                          US 08/352,322
                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/155,301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US 08/096,762
                                                                                                                                                                                                                                                                                                        US 08/165,699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 08/053,131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                us 07/990,860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/904,068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/09/042,353
```

```
Qy
                                                                                                                      DЪ
                                                                                                                                                     δÃ
                                                                                                                                                                                     Вр
                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-042-353-393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (415) 576-0300 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                      1696
                                                                                                                                                                                                                                                  1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1636 TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                       1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1396 AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT 1455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1276 CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1216 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: lir
MOLECULE TYPE:
661 caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                    601 gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                  1336 TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 01-DEC-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                    541 tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                361 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 agtaagttggccgcagtgttatcactcatggttattggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Apple, Randolph T
REGISTRATION NUMBER: 36,
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                  TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT 1755
                                                                                                                                                                                                     tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 1001; DB 4; Length 3819; 100.0%; Pred. No. 2.3e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO PCT/US97/21803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/758,417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 014643-009040US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                    1695
                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                    1575
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-758-417A-243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 243, Application US/08758417A Patent No. 6300129
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1816 CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Producing Heterologous Antibodies NUMBER OF SEQUENCES: 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Lonberg, Nils
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Transgenic No. 6300129-Human Animals for
                                     FILING DATE: 16-DEC-1992 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttcgtctcgcgcgttttcggtgatgacggtgaaaacctctgacacatgcagctcccggag 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: San Francisco
STATE: California
                                                                                                                                                                                  APPLICATION NUMBER: US 08/161,739
FILING DATE: 03-DEC-1993
APPLICATION NUMBER: US 08/155,301
FILING DATE: 18-NOV-1993
                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 08/209,741 FILING DATE: 09-MAR-1994
                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 10-OCT-1995
APPLICATION NUMBER: US 08/352,322
FILING DATE: 07-DEC-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/758,417A FILING DATE: 02-Dec-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                       APPLICATION NUMBER: US 08/096,762 FILING DATE: 22-JUL-1993 APPLICATION NUMBER: US 08/053,131
                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/728,463 FILING DATE: 10-OCT-1996
REGISTRATION NUMBER: 41,303
                                                                               APPLICATION NUMBER: US 07/990,860
                                                                                                                                                                                                                                                                    FILING DATE: 10-DEC-1993
                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 08/165,699
                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 08/544,404
                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kay,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Robert M.
                                                                                                     26-APR-1993
                   Andrew T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2055
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                   ΩV
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-758-417A-243
                                                                                                                           δÃ
                                                                                                                                                        Ъ
                                                                                                                                                                                  QY
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                 밁
               δÃ
                                           B
                                                                     δÃ
                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1001; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 243:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1636
                                                                                                                                                                                                                                                                                                                                   1576
                                                                                                                                                                                                                                                                                                                                                                                        1336 TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1396 AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                   1696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481 tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtggcacccaactga
                                                                                                                                                                                                                                                                                                                                                  421 ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: DNA
SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                          atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                    agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCCATTGCTACAGGCATCGTGGTGTCA 1275
gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                         gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                               tottcagcatottttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 600
                                                                                                                                                                                                                                                                           TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                   CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                   CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                          GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTT
                                                                                                                                                                                                                   TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                             ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 3819 base pairs TYPE: nucleic acid STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 014643-009030US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1001;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           243:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.3e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4; Length 3819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1455
                   840
                                                                                                                                                                                                                      1755
                                                                                                                                                                                                                                                                              1695
                                                                                                                                                                                                                                                                                                                                                                                              1575
                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                1935
                                                                                                        1875
                                                                                                                                                              1815
                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                      1635
```

QY

QΥ

Q Вb

1936

```
; HYPOTHETICAL: 1; ANTI-SENSE: NO US-09-039-982A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
US-09-039-982A-21/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                             Matches 1001; Conservative
                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 21, Application US/09039982A Patent No. 6225042
                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Olson, Arne M.
REGISTRATION NUMBER: 30,203
REFERENCE/DOCKET NUMBER: TSRI
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 580-1180
TELEPAX: (312) 580-1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
   2431 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                         2491 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Jackson, Michael
APPLICANT: Peterson, Per A
TITLE OF INVENTION: ANTIGEN PRESENTING
NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                      MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2116 GCGGGTGTTGGCGGGTGTCGGGGTGGCTTAACTATGCGGC 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1996 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 20 No. CITY: Chicago STATE: Illinoi
                    61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                               Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Relactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          901 acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca
                                                                                                                                                                                                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                         1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 16-MAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Illinois
                                                                                                                                                                                                                                                                                                                                                          3875 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3: Olson & Hierl, Ltd.
20 No. 6225042th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brunmark, Anders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sprent, Jonathan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cai,
                                                                                                                                                                                                                                                                           N
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-MAR-1998
ON: 435
                                                                                                                                                                                                                                                                                          CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zeling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/09/039,982A
                                                                                                                                                                                                                                                                                                                                                                                                 21:
                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSRI4710
                                                                                                                                                             Score 1001; DB 4;
Pred. No. 2.4e-301;
                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYSTEM AND METHODS FOR ACTIVATION OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Suite 3000
                                                                                                                                               0;
                                                                                                                                               Indels
                                                                                                                                                                              Length
                                                                                                                                             0,
                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2055
                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T-CEL
                                                                                                                                                             US-09-039-641-21/c
                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩV
                                                                                                                          Sequence 21, Application US/09039641 Patent No. 6251627
                                                                GENERAL INFORMATION:
APPLICANT: Cai, Zeling
APPLICANT: Sprent, Jon
                  APPLICANT:
                                                   APPLICANT:
                                                                                                                                                                                                                               1531 GCGGGTGTTGGCGGGTGTCGGGGTTGGCTTAACTATGCGGC
 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                     1591 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2311
                                                                                                                                                                                                                                                                                                                                                                       1651 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                             1711 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                  961 gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                     901 acggtcacagcttgtctgtaagcggatgccggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                           | tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             glcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | tcaaggatcttaccgctgttgagatccagttcgatgtaacccaactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ccacatagcagaactttaaaaagtgctcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                               Sprent, Jonathan
Brunmark, Anders
Jackson, Michael
              Peterson,
ANTIGEN PRESENTING SYSTEM AND METHODS FOR
                  Per
                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                       1532
                                                                                                                                                                                                                                                                                                                                                                         1592
                                                                                                                                                                                                                                                                                                                                                                                                                                             1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2312
```

δÃ 밁

Дb Ş

TITLE OF INVENTION: ACTIVATION OF T-CELLS NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                          ρ
                                                            밁
                                                                                       δõ
                                                                                                                      밁
                                                                                                                                                  Qy
                                                                                                                                                                                  밁
                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-039-641-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (312) 580-1189
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                         2431
                                                                                                                                                                                                                                                                                                                                                                                                                                      2491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 3875 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 580-1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Olson, Arne M.
REGISTRATION NUMBER: 30,203
                                                                                                                                                                                                                                                2311
                                                                                                                                                                                                                                                                                                            2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear MOLECULE TYPE: cDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                        2191
                                                                                                                                                                                    2251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                     301
                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                       61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE: 8-MAR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 20 No. CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                            ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                        gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                    agtaagttggccgcagtgttatcactcatggttatggcagcagcagcataattctcttact
                                                                                                                                                                                                                                                               tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2432
CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                      GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                    AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                  TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                         AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3875 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20 No. 6251627th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Olson & Hierl,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UMBER: US/09/039,641
8-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; Score 1001; DB 4; Length 3875; 100.0%; Pred. No. 2.4e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TSRI4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                              2312
                                                                                                                                                                                                                                                                                                                                                                          2372
                                                                                                                                                                                    2192
                                                                                                                                                                                                                                                  2252
                                                             2072
```

0;

```
Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Sequence 21, ; Patent No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-039-762A-21/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
ATTORNEY/AGENT INFORMATION:
NAME: OLSON, AIRE M. 30,203
REGISTRATION UMBER: 30,203
REFERENCE/DOCKET NUMBER: TSRI
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 580-1180
TELEPAX: (312) 580-1189
                                                                                                                         CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
FILING DATE: 16-MAR-199
CLASSIFICATION: 435
                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Brunmark, Anders
APPLICANT: Jackson, Michael
APPLICANT: Peterson, Per A.
TITLE OF INVENTION: ANTIGEN PRESENTING SYSTEM AND METHODS
TITLE OF INVENTION: FOR ACTIVATION OF T-CELLS
NUMBER OF SEQUENCES: 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2011
                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1531 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                     ADDRESSEE: Olso
STREET: 20 No.
CITY: Chicago
STATE: Illinois
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atttagaaaaataaacaaatagggttccgcgcacatttcccccgaaaagtgccacctgac 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | tottcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acggtcacagcttgtctgtaagcggatgccgggaggcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1, Application US/09039762A 6255073
                                                                                                                                                                                                                                                                                          60606
                                                                                                                                                                                                                                                                                                                          Illinois
                                                                                                                                                                                                                                                                                                                                                           20 No. 6255073th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sprent, Jonathan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cai, Zeling
                                                                                                                                                                                                                                                                                                                                                                                Olson & Hierl,
                                                                                                                                            16-MAR-1998
                                                                                                                                                                                                                                                   Floppy disk
                                                                                                                                                              US/09/039,762A
                                                         471.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1892
```

INFORMATION FOR SEQ ID NO:

21:

SEQUENCE CHARACTERISTICS:

LENGTH:

3875 base pairs

```
QΥ
                                                                                                    Вþ
                                                                                                                                 δ
                                     B
                                                                                                                                                                    밁
                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                              Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-039-762A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
HYPOTHETICAL: N
ANTI-SENSE: NO
                                                                                                                                                                    1831
                                                                                                                                                                                                                                     1891
                                                                                                                                                                                                                                                                                                    1951
                                                                                                                                                                                                                                                                                                                                                                  2011
                                                                                                                                                                                                                                                                                                                                                                                                                                 2071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2311
841 tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                     781
                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                  caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                    CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                 TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                    gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt
                                                                                                                                                                                                                                                                                                                 tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccacatagcagaactttaaaagtgctcatcgttggaaaacgttcttcggggcgaaaactc 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAATAGTGTATGCCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaataccgggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgatcccccatgttgtgcaaaaaaagcggttagctccttcggtcctcccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                   GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT 1892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA 2132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cgctcgttcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 2372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1001; DB 4; Length 3875; Pred. No. 2.4e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                     1652
                                                                                                    1712
                                                                                                                                                                                                                                 1832
                                                                                                                                                                                                                                                                                                                                                                 1952
                                                                                                                                                                                                                                                                                                                                                                                                                                2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
Qγ
                  QΥ
                                                        뫄
                                                                                                                             DЬ
                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                              ; ANTI-SENSE: US-09-039-982A-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŞQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-039-982A-27/c
                                                                                                                                                                                                     Matches 1001;
                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 27, Application US/09039982A
                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                            MOLECULE HYPOTHETICAL: P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Olson, Arne M.
REGISTRATION NUMBER: 30,203
REFERENCE/DOCKET NUMBER: TSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                        2434 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 2375
                                                                                                                             2494 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2435
                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 3878 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Jackson, MAPPLICANT: Peterson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1651 TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1531 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1591 ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACCAAGCCCGTCAGGGCGCGTCA 1532
                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961 gcgggtgttggcgggtgtcggggcttggcttaactatgcggc 1001
                                                                          61 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/OFILING DATE: 16-MAR-1998 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: 20 No CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
ogctogtcgtttggtattggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60606
                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20 No. 6225042th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (312) 580-1180
(312) 580-1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cai, Zeling
                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Jackson, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brunmark,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sprent,
                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Olson & Hierl,
                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                      double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jonathan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTIGEN PRESENTING
                                                                                                                                                                                                                100.0%; Score 1001; DB 4; 100.0%; Pred. No. 2.4e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Anders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/09/039,982A
                                                                                                                                                                                                                                                                                                                                                                                                                                                              27:
                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSRI4710
                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYSTEM AND METHODS FOR ACTIVATION OF T-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Suite 3000
                                                                                                                                                                                                                                     Length 3878,
                                                                                                                                                                                                     0
                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1592
                                                                                                                                                                                                     0
```

```
ρ
                                                                                                                                                     US-09-039-641-27/c
; Sequence 27, Application US/09039641
; Patent No. 6251627
                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뫄
                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Cai, Zeling
APPLICANT: Sprent, Jonathan
APPLICANT: Brunmark, Anders
APPLICANT: Jackson, Michael
APPLICANT: Peterson, Per A
TITLE OF INVENTION: ANTIGEN PRESENTING SYSTEM AND
TITLE OF INVENTION: ACTIVATION OF T-CELLS
NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2314
                                                                                                                                                                                                                                                                                                         1594
                                                                                                                                                                                                                                                                                                                                                                  1654
                                                                                                                                                                                                                                                                                                                                                                                                                             1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                  tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgaccatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | tetteageatettttaettteaecagegtttetgggtgageaaaacaggaaggeaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                              GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 1494
                                                                                                                                                                                                                                                            gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                        acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                             GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                           gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactctttct 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                         ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2075
                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
```

```
QΥ
                                     멍
                                                                δõ
                                                                                             맑
                                                                                                                    δÃ
                                                                                                                                                   뮍
                                                                                                                                                                            Š
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                ρy
                                                                                                                                                                                                                                                             뭥
                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-039-641-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 100.0%; Score 1001; DB 4; Best Local Similarity 100.0%; Pred. No. 2.4e-301; Matches 1001; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE:
HYPOTHETICAL: 1
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM
                                                                                             2134
                                                                                                                                                    2194
                                                                                                                                                                                                                                                               2314
                                                                                                                                                                                                                                                                                                                     2374
                                                                                                                                                                                                                                                                                                                                                                           2434
                                                                                                                                                                                                                                                                                                                                                                                                                                 2494 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Olson
STREET: 20 No. 6
CITY: Chicago
STATE: Illinois
COUNTRY: USA
           481
                                                                                                                         361
                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid STRANDEDNESS: double TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/
FILING DATE: 8-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 60606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                              cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                            tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                        CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                   ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                            tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                    CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                  cgctcgtcgtttggtatggcttcattcagctccggttccccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                            AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                        agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Olson & Hierl, Ltd.
No. 6251627th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/09/039,641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TSRI4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suite 3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA 1955

540 2015 2135

2075

2315

2255

TYPE: nucleic acid STRANDEDNESS: double

TOPOLOGY:

linear

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-039-762A-27/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 27, Appli
Patent No. 6255073
                                                       NAME: OLSON, Arne M.

REGISTRATION NUMBER: 30,203
REFERENCE/DOCKET NUMBER: TSRI
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312,580-1180
                                 TELEFAX: (312) 580-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatil
OPERATING SYSTEM: PC-DOS,
SOFTWARE: Patentin Relea:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Brunmark, Anders
APPLICANT: Jackson, Michael
APPLICANT: Peterson Trans
                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Peterson, Per A.
TITLE OF INVENTION: ANTIGEN PRESENTING SYSTEM
TITLE OF INVENTION: FOR ACTIVATION OF T-CELLS
NUMBER OF SEQUENCES: 59
                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1654
                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
STREET: 2
CITY: Chi
STATE: I1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                 APPLICATION NUMBER: US/09/039,762A FILING DATE: 16-MAR-1998 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC 1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9tCtaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  atttagaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | tetteageatettttaettteaecagegtttetgggtgageaaaaaeagggaaggeaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC 1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT 1895
                                                                                                                                                                                                                                                                                                                               60606
                                                                                                                                                                                                                                                                                                                                                                               Chicago
                                                                                                                                                                                                                                                                                                                                                               Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application
                                                                                                                                                                                                                                                                                                                                                                                             20 No. 6255073th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sprent, Jonathan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cai, Zeling
                                                                                                                                                                                                                                          PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                          IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                               Olson & Hierl,
base pairs
                                                   580-1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/09039762A
                                                                                                     TSRI 471.0 DIV.2
                                                                                                                                                                                                                                                                                                                                                                                                 36th Floor
                                                                                                                                                                                                                                            #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1835
```

```
밁
                      Qy
                                                 g
                                                                       Qy
                                                                                                    밁
                                                                                                                            QУ
                                                                                                                                                          밁
                                                                                                                                                                                 Qy
                                                                                                                                                                                                             B
                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-039-762A-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 1001
                                                                                                                                                                                                                                                                   1954
                                                                                                                                                                                                                                                                                                                    2014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: CI
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2434
                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Sin
hes 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
            tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag 900
                                                                                                                                                                      caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                         gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt
                                                                                                                                                                                                                                                                               gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                              GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTT
                                                                                                                                                                                                                                                                   TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                    TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                       CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                     ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 1001; DB 4; 100.0%; Pred. No. 2.4e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
1595
                                                   1655
                                                                                                      1715
                                                                                                                                                          1775
                                                                                                                                                                                                                                                                                                                    1955
                                                                           840
                                                                                                                                780
                                                                                                                                                                                                              1835
                                                                                                                                                                                                                                                                   1895
                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                       2015
                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                          2075
                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-042-353-369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 369,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
ADDRESSEE: Townsend Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Transgenic NO. 1200... Intibodies
TITLE OF INVENTION: Producing Heterologous Antibodies
NUMBER OF SEQUENCES: 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/904,068
FILING DATE: 23-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1534 GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Lonberg, Nils APPLICANT: Kay, Robert M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1594
                                                                     FILING DATE: 07-DEC-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                     APPLICATION NUMBER: 1
FILING DATE: 03-DEC-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 18-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 16-DEC-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                               PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDAL
STREET: 1.
STREET: 1.
San F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 26-AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE: 18-MA
                                                                                        APPLICATION NUMBER: US 0 FILING DATE: 07-DEC-1994
                                                                                                                                            APPLICATION NUMBER: US 0 FILING DATE: 09-MAR-1994
                                                                                                                                                                                                  APPLICATION NUMBER: FILING DATE: 10-DEC
                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/096,762 FILING DATE: 22-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 17-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
 APPLICATION NUMBER:
                                    FILING DATE:
                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6255458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09042353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                          26-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
                                    10-OCT-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-MAR-1998
                                                                                                                                                                                                    10-DEC-1993
                                                                                                                                                                                                                                                          03-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transgenic No. 6255458-Human Animals for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   us 07/990,860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US 07/810,279
                                                                                                                                                               US 08/209,741
                                                                                                                                                                                                                                                                           us 08/161,739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 07/853,408
                                                                                                           US 08/352,322
                                                                                                                                                                                                                     us 08/165,699
                                                                                                                                                                                                                                                                                                                                   US 08/155,301
                                                     US 08/544,404
                                                                                                                                                                                                                                                                                                                                                                                                                                             us 08/053,131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/042,353
US 08/728,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
```

```
δõ
                                                                             QΥ
                                                                                                             В
                                                                                                                                           Ωy
                                                                                                                                                                             밁
                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: DNA US-09-042-353-369
                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1001; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (415) 576-03 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1156 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 1215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 01-DEC-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                              1636
                                                                                                                                                                                                                                           1516
                                                                                                                                                                                                                                                                                                         1456
                                                                                                                                                                                                                                                                                                                                                                         1396
                                                                                                                                                                             1576 CCACATAGCAGAACTITAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                          361 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: WO POFILING DATE: 10-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Apple, Randolph REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH:
                                                                                                                                                                                                                                                                                                    tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                               tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat 600
                                                                                                             TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA 1695
                                                                                                                            tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga 540
                                                                                                                                                                                                                                           GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                     TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%; Score 1001; DB 4;
100.0%; Pred. No. 2.4e-301;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO PCT/US97/21803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US 08/758,417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO PCT/US96/16433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36,429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   369:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 014643-009040US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 3881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
```

420

1575 480

1635

1455

Gaps

0;

```
US-08-758-417A-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 217, Applicat Patent No. 6300129
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1936 GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1876 ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1816 CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1756 GCCGCAAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841 tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721 atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kay, Robert M. TITLE OF INVENTION: Transgenic No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Lonberg, Nils
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                            APPLICATION NUMBER: US 08/096,762 FILING DATE: 22-JUL-1993
                                                                                                                                        APPLICATION NUMBER: FILING DATE: 03-DEC-
                                                                                                                                                                                              FILING DATE: 07-DEC-1994
APPLICATION NUMBER: US 01
FILING DATE: 09-MAR-1994
APPLICATION NUMBER: US 01
                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 0
                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 08/728,463 FILING DATE: 10-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/758,417A FILING DATE: 02-Dec-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
                        FILING DATE:
                                        APPLICATION NUMBER: US 08/053,131
                                                                                                    FILING DATE: 18-NOV-1993
                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                FILING DATE: 10-DEC-1993
                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/544,404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/08758417A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                          26-APR-1
                                                                                                                                          03-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Producing Heterologous Antibodies
                                                                                                                                                                                                                                      US 08/209,741
                                                                                                                    US 08/155,301
                                                                                                                                                          US 08/161,739
                                                                                                                                                                                                US 08/165,699
                                                                                                                                                                                                                                                                            US 08/352,322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6300129-Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2115
                    Qy
                                                                                              Q
                                                            DЪ
                                                                                                                                      В
                                                                                                                                                                          Qy
                                                                                                                                                                                                                뭥
                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-758-417A-217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: 217:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1216
721 atttagaaaaataaacaaataaggggttccgcgcacatttccccgaaaaagtgccacctgac
                                                                              661 caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: DNA SEQUENCE DESCRIPTION: SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Serafini, Andrew T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
                                                                                                                                                          | tottcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                  tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agtaagttggccgcagtgttatcactcatggttatggcagcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                          CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                              TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                      CCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                        ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGGGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 1275
                                                                                                                                      GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                  TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCCAACGATCAAGGCGAGTTACA 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA 1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 3881 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 41,303
REFERENCE/DOCKET NUMBER: 014643-009030US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (415) 576-0300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1001; Ub ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3881;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                          1875
                                                                                                                                                                                                                                                                                                                                                                                                            480
                      780
                                                                                                                                      1815
                                                                                                                                                                            660
                                                                                                                                                                                                                  1755
                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                      1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1515
                                                                                                                                                                                                                                                                                              1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
```

0

DЪ Q В Qy В QΥ 뮹 δÃ В Š Ъ γ 밁

2260

240

2320

```
RESULT 14
US-09-039-982A-30/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                   ; HYPOTHETICAL:
; ANTI-SENSE: 1
US-09-039-982A-30
 밁
                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 6225042
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 30,
                                                                  Matches 1001;
                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                     TELEPHONE: (312) 580-1180
TELEFAX: (312) 580-1189
INFORMATION FOR SEQ ID NO: 30:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Cai, Zeling
APPLICANT: Sprent, Jonathan
APPLICANT: Brunmark, Anders
APPLICANT: Jackson, Michael
APPLICANT: Peterson, Per A
TITLE OF INVENTION: ANTIGEN PRESENTING
NUMBER OF SEQUENCES: 59
                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: Olson, Arne M.
REGISTRATION UMBER: 30,203
REFERENCE/DOCKET NUMBER: TS
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1876
2499
                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 3883 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTMARE: Patentin Release
                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/09/039,982A FILING DATE: 16-MAR-1998 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 20 NO. (CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDEDNESS: doub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                      TOPOLOGY:
                 1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAACTATGCGGC 2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCCGTCAGGGCGCGTCA 2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcaggggcgcgtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
 CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09039982A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: Olson & Hierl, Ltd.
20 No. 6225042th Wacker Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                       NO
                                                                    Conservative
                                                                                                                                                                                                                    linear
                                                                                                                                                                                     NO
                                                                                                                                                                                                     CDNA
                                                                                                                                                                                                                                      double
                                                                                100.0%;
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                        TSRI4710
                                                                 Score 1001; DB 4;
Pred. No. 2.4e-301;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AND
                                                                                                    Length
                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METHODS FOR ACTIVATION OF
                                                                                                      3883;
                                                                    0;
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
     2440
                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T-CEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                    RESULT 15
US-09-039-641-30/c
                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                        B
                                                   Sequence 30, Application US/09039641 Patent No. 6251627
                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2319
                                                                                                                                                                                                                          1599
                                                                                                                                                                                                                                                                                                                                                                                                                             1779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2079
     APPLICANT:
                                                                                                                                                         1539 GCGGGTGTTGGCGGGTGTCGGGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tottcagcatottttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cgctcgtcgtttggtattggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gcgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                         tttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agtaagttggcogcagtgttatcactcatggttatggcagcactgcataattctcttact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                        ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA
                                                                                                                                                                                                                                          acggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtca
                                                                                                                                                                                                                                                                                                                                                            GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                                                                                                                                                                          gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                             atttagaaaaataaacaaataggggttccgcgcaccatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                                                                                                                                                       TTTCGTCTCGCGCGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
     Cai, Ze.
Sprent,
                     Zeling
     Jonathan
```

1960

540 2020 480

2080

2140

2200

1900

600

660

1780

780

1840

720

1540

1600 900 1660 840 1720

```
US-09-039-641-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 1001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (312) 580-1189
INFORMATION FOR SEQ ID NO: 3
SEQUENCE CHARACTERISTICS:
LENGTH: 3883 base pairs
2139 GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGCG
                                                                       2199
                                                                                                                                                                                                                  2319
                                                                                                                                                                                                                                                                                                                                                                2439
                                                                                                                                                                                                                                                                                                                                                                                                                                       2499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Jackson, Michael
APPLICANT: Peterson, Per A
TITLE OF INVENTION: ANTIGEN PRESENTING SYSTEM AND METHODS FOR
TITLE OF INVENTION: ACTIVATION OF T-CELLS
CORRESPONDENCES: 45
CORRESPONDENCE ADDRESS:
                                                                                                                                              2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYPOTHETICAL:
ANTI-SENSE: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 580-1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Olson, Aine M.
REGISTRATION NUMBER: 30,203
REFERENCE/DOCKET NUMBER: TSI
               361 gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                    121 cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 20 No. CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/
FILING DATE: 8-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                      cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 2440
                                                                                                                                                                                                                                                                                     CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA 2320
                                                                                                                                                                                                                                                                                                                                                           AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA 2380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20 No. 6251627th Wacker Drive, Suite 3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brunmark, Anders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Olson & Hierl,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 1001; DB 4; 100.0%; Pred. No. 2.4e-301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             us/09/039,641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TSRI4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4; Length 3883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                          2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

Qy Вþ Qy В δÃ В QΥ Вb δÃ Вр οy В δÃ

밁

```
멍
                                 Qy
                                                                      Db
                                                                                                      δã
                                                                                                                                         Ъ
                                                                                                                                                                         Qγ
                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                               Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                1719
                                                                                                                                                                                                                                                                                                                                                                                                                                 1899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2019
                                                                                                                                                          841 tttcgtctcgcgcgttttcggtgatgacggtgaaaaacctctgacacatgcagctcccggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
gcgggtgttggcgggttgtcgggggtggctggcttaactatgcggc 1001
                                                                                       acggtcacagcttgtctgtcagcggatgccgggagcagacaagcccgtcagggcgcgtca 960
                                                                                                                                                                                                                                                                               atttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaactc
                                                                                                                                                                                                                                                                                                                                                        caatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgt 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | tcaaggatcttaccgctgttgagatccagttcgatgtaacccaactcgtgcacccaactga
                                                                      ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCA 1540
                                                                                                                                         TTTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
                                                                                                                                                                                                              GTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCC
                                                                                                                                                                                                                             gtctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccc
                                                                                                                                                                                                                                                                                                                                                                                                                                               gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcttcagcatcttttactttcaccagcgtttctgggtgagcaaaacagggaaggcaaaat 600
                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCACATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGGGGAAAACTC 2020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA 1960
                                                                                                                                                                                                              1660
                                                                                                                                                                                                                                                                                   1720
                                                                                                                                         1600
                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                          1780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                840
                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                               1840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
```

Search completed: January 17, Job time: 12327 sec 2002, 16:26:57

• •	
•	
•	
	•

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB seq length: 0 Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
EST:*

2: em_
2: em_
4: em,
5: em,
6: em
6: em
7: em
8: em
110: (
111: (
112: (
113: (
114: (
115: (
116: (
116: (
117: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
118: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       January 17, 2002, 14:58:38; Search time 3755.78 Seconds (without alignments) 2863.992 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11351937 seqs, 5372889281 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 cctgcaactttatccgcctc.....ggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-740-211-13_COPY_6000_7000
1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                   em_htc:*
gb_est1:*
gb_est2:*
gb_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_estba:*
em_estro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_estom:*
em_estpl:*
em_gss_pro:*
em_gss_rod:*
em_gss_vrt:*
em_gss_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_estfun:*
em_esthum:*
                                                                                                                                                       em_gss_fun:*
em_gss_hum:*
em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_estin: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       em_estov:*
                                                                                                                                                                                                                                                                                                                           gb_gss:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22703874
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match L	Length DB	1	ID	Description
c 1	766.8	76.6	935	11	BG838279	вс
c 2	741	74.0	841	10	AL042026	AL
ω	673.2	67.3	754	11	BG920379	BC
C 4	650.6	65.0	767	10	AL040542	AL
ი 5	638	63.7	693	10	AL598527	AL
ი 6	636.6	63.6	889	10	AL042640	ALC
7	607.2	60.7	914	10	BE569261	BE5
c 8	591.4	59.1	702	10	AL042540	ALC
c 9	588.2	58.8	695	13	AG002183	AGC
c 10	576.8	57.6	658	13	AG014918	AGC
c 11	559.2	55.9	793	13	AG000364	AG000364
c 12	554	55.3	696	13	AG009765	AG0

00000 0000 0 0000	
00000000000000000000000000000000000000	
466.2 461 459.4 457 457.4 451.4 451.4 451.4 433.2 433.2 429 429 429 429 414.8 414.8 414.8 414.8 414.8 414.8 414.8 414.8 414.8	548.4 548.4 545.6 531.6 531.8 531.4 531.6 499.6 488.6 476.6
44444444444444444444444444444444444444	54.6 54.5 554.5 554.5 53.1 153.1 551.7 551.7 551.7 551.7 551.7
890 721 722 647 832 474 911 706 686 686 686 686 715 715 715 715 715 718	696 801 720 720 711 890 619 710 620 620 604
13 13 13 13 13 13 13 13 13 13 13 13 13 1	10 10 10 10 11 10 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 10
B07159 AL044583 AG001126 AG008943 B6903768 AF601733 AG014348 B6923556 AG006533 AG016243 AG016243 AG016243 AG004170 AG010896 AG013813 AG007414 AF6007414 AF6007417 AG007414 AF6007414	BE573230 BE569687 AL041808 AG000534 AG010947 AL046135 AV611386 CNS075W1 AZ918759 AL599532 AG002706 AL6412734 AL041236 BG838185
B07159 cSRL72-c1-u AL044583 DKFZP434N AG001126 Homo sapi AG00843 Homo sapi BG923768 602825893 AV601733 AV601733 AG014348 Homo sapi AG016243 Homo sapi AG016243 Homo sapi AG016243 Homo sapi AG010296 Homo sapi AG0113813 Homo sapi AG013813 Homo sapi AG017414 Homo sapi AV404393 AV404393 AV596377 AV596377 AG009622 Homo sapi AG009622 Homo sapi AG018895 RPCI11-2816 AL598454 DKFZP313H	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

ALIGNMENTS

FEATURES SOURCE	JOURNAL COMMENT	REFERENCE AUTHORS TITLE	SOURCE ORGANISM	RESULT 1 BG838279/c LOCUS DEFINITION ACCESSION VERSION
ybu Carling Avenue, Bidg. 20, Octawa, Outdate, Ain Oct., Candon Tel: (613) 759-1662 Fax: (613) 759-1701 Email: singhja@em.agr.ca. Location/Qualifiers 1. 935 /organism="Glycine clandestina" /cultivar="1035" /cultivar="1035" /clone="Gc01_10e07" /clone="Gc01_10e07" /clone_lib="Gc01_AAFC_ECORC_cold_stressed_Glycine_clandest	Oilseed Research Centre	l (bases 1 to 935) Singh,J.A., Farah,S., Chapados,J., Couroux,P., De Moors,A., Harris ,L.J., Hattori,J.I., Ouellet,T., Robert,L.S., Sprott,D. and Tinker ,N.A. Expressed Sequence Tags from Cold-Stressed Glycine clandestina	EST. Glycine clandestina. Glycine clandestina Glycine clandestina Enkaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Enkaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermatophyta; Magnoliophyta; Fabales; Fabaceae; Papilionoideae; Phaseoleae; Glycine.	BG838279 935 bp mRNA EST 25-MAY-2001 GC01_10e07_R GC01_AAFC_ECORC_cold_stressed_Glycine_clandestina Glycine clandestina cDNA clone Gc01_10e07, mRNA sequence. BG838279 BG838279.1 GI:14204601

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNT
                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                  333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  633
  \omega
                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTGTAAG
                                       cgtctaag
                                                                                                           tatttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctga 779
                                                                                                                                                                                                                                                                                        tgccgcaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttt 659
                                                                                    TATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTAA
                                                                                                                                                                          TCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATG
                                                                                                                                                                                                 tcaatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatg
                                                                                                                                                                                                                                                                                                                                                                                 atcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaa 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ctcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactg 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcgggggcgaaaact 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    agaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgc 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                TGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTYCCTTTT 154
                                                                                                                                                                                                                                                                                                                                                       ATCTYCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAAGGCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAMCCCACTCGTGCACCCAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctg 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTAAGTTGGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agtaagtt-ggccgcagtgttatcactcatggttatggcagcactgcataattctcttac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCARGGCGAGTTACA 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTYCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ы
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="Leaves, stem"
/note="Vector: Bluescript SK+/XhoI-ECORI; Site_1: ECORI;
Site_2: XhoI; Plants incubated at 2 degrees under 12 hour
of light/day. Harvested after only 2-3 days of cold
treatment. cDNA was prepared with the Uni-Zap cDNA kit
from Stratagene. Eco RI adapters were liked followed |
from Stratagene. Eco RI and ligated to pBluescript."
a 213 c 227 g 238 t 14 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76.6%;
98.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 766.8; DB 11
Pred. No. 1.9e-209;
7; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 11; Length 935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۲;
                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hours
```

δÃ

Ъ Š DЪ Qy DЪ Qy 밁 δÃ g δõ

밁

밁 δÃ 밁

B δÃ В Qy 밁 δÃ Ъ QΥ B Qy B Š

```
δÃ
                                                              Вb
                                                                                                                                        밁
                                                                                                                                                                          Ωy
                                                                                                δÃ
                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 2
AL042026/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                          741
                                                                                                                                                                                                                                                                                           681 AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCA
                                                                                                                                                                                                                                                                                                                                                                                          1 cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt 60
gtcatgccatccgtaagatgcttttctgtggctggtgagtactcaaccaagtcattctga
                                                                                                                                                                                                                                       | cgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttaca
                                                            AGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACT
                                                                              agtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctttact
                                                                                                                                      TGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGA
                                                                                                                                                        tgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcaga
                                                                                                                                                                                                                   CGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACA
                                                                                                                                                                                                                                                                                                                 agttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtca 120
                                                                                                                                                                                                                                                                                                                                                                       CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT 682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No s1 sequence available.
This clone (DKFZp434E111) is available at the RZPD in Berlin Please contact the RZPD: Ressourcenzentrum, Heubnerweg 6, 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max-Planck-Institute for Molecular Genetics Inhestrasse 7, 14195 Berlin, Germany Tel: +49-30-84131128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Heidelberg/Germany) within the cDNA sequencing consortium German Genome Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Clone from S. Wiemann, Molecular Genome Analysis, German Can
Research Center (DKFZ); Email s.wiemann@dkfz- heidelberg.de;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: poustka@mpimg-berlin-dahlem.mpg.de This is the 5' sequence of the clone insert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Berlin-Charlottenburg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequenced by DKFZ (German Cancer Research Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Poustka A.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DKFZp434E111_r1 434 (synonym: hDKFZp434E111 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Department Lehrach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST (Poustka, et al.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Poustka, A., Klein, M., Mewes, H.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria; Primates; 1 (bases 1 to 841)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL042026.1 GI:5421372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="DKFZp434E111"
/clone_lib="434 (synonym: htes3)"
/tissue_type="testis"
/dev_stage="adult"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Vector: pSport1;
192 c 202 g 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 741;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (synonym: htes3) Homo sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GERMANY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Site_1: NotI; 221 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gassenhuber, J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .8e-202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone@rzpd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 841;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Heubnerweg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                      360
                                                                                                                                        502
                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

δÃ

γ

Ş

QΥ

δÃ

Qy

В

밁

Gaps

2

190

256

250

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BG920379
                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcg 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gccgcaaaaaagggaataagggcgacacggaaatgttgaatactcctatccttttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTAGAAAAATAAACAAATA 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  atttagaaaaataaacaaata 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCAAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA sequence.
BG920379
BG920379.1 GI:14300855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG920379 754 bp mRNA
602826032F1 NCI_CGAP_Mam6 Mu:
                                                                                                                                                                                                                                                                                                                                                                                         NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                 Plate: LLAM10916
                                                                                                                                                                                                                                            found through the I.M.A.G.E. Consortium/LLNL http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                 Tissue Procurement: Jeffrey Green M.D.
                                                                                                                                                                                                                                                                                                                                             Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                             Jnpublished (1999)
                                                                                                                                                                                                                                                                                                  CDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nouse mouse
                                                                                                                                                                                                                                                                       DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information
                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 754)
                                                                                                                                                                                                 quality sequence start: 15 quality sequence stop: 717.
                                        /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating d
/dev_stage="5 months"
/lab_host="DH10B"
/note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator
                                                                                                              /strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:4954975"
                                                                                                                                                                                        Locat
                                                                                                                                                            /organism="Mus musculus"
                                                                                                                                                                                       con/Qualifiers
                                                                                                                                                                                                                              row: o column: 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        musculus
                                                                        ductal carcinoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                             Gene
                                                                                                                                                                                                                                                                                                                                                                                             Collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMAGE: 4954975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-JUN-2001
                                                                                                                                                                                                                                                                             can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               202
                                                                                                                                                                                                                                                                               be
                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                             밁
                                                                                                                                                                                                                     Qγ
                                                                                                                                  RESULT 4
AL040542/c
                                    SOURCE
                                                                                                       DEFINITION
                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    137
                                                                                                                                                                                                                                                                                                                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251 GATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          197
                                                                                                                                                                                             731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgttgagatccagttcgatgtaacccactcgtgcacccaactgatcttcagcatctttta 556
                                                                                                                                                                                                                                                  taaaagtgctcatcattggaaaacgttcttcggggcgaaaactctcaaggatcttaccgc 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCCACATAGCAGAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaccgagttgctcttgcccggcgtcaatacgggataataccgcgcccacatagcagaactt 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATTTCGTTAAAATT 746
                                                                                                                                                                                                                          ttattatcatgacatt 809
                                                                                                                                                                                                                                                                                                            CATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAA
                                                                                                                                                                                                                                                                                                                           catttatcagggttattgtctcatgagcggatacatatttgaatgtatttagaaaaataa 734
                                                                                                                                                                                                                                                                                                                                                                    ATAACGGGCGACACGGAAATGTTGAATACTCATACTCTTTCCTTTTTCAATATTATTGAAG
                                                                                                                                                                                                                                                                                                                                                                                   aataagggcgacacggaaatgttgaatactcatactcttcctttttcaatattattgaag 674
                                                                                                                                                                                                                                                                                                                                                                                                                             CTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAAGGCAAAATGCCGCAACAAAAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                         ctttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaatgccgca--aaaaaggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tgttatcactcatggttatggcagcactgcataattctcttactgtcatgccatccgtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       710;
                                             AL040542 767 bp mRNA ES9
DKFZp434I1114_r1 434 (synonym: htes3) Homo
DKFZp434I1114_5', mRNA sequence.
AL040542
AL040542.1 GI:5409490
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
       Eukaryota;
                     Homo sapiens
                                     human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           providing samples: Jeffrey Green,
174 c 166 g 213 t
       Metazoa; Chordata; Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     67.3%;
96.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 673.2; DB 11;
Pred. No. 1.5e-182;
""Amatches 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ĭ.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                          29-FEB-2000
                                                                                                              CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
••
            Euteleostomi;
```

430

370

310

clone

793 670

```
Ş
                                          В
                                                                       ρ
                                                                                                           В
                                                                                                                                         Qy
                                                                                                                                                                               망
                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 653;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNT
        671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                          285
                                                                                                                                             551
                                                                                                                                                                               405
                                                                                                                                                                                                                 491
                                                                                                                                                                                                                                                   465
                                                                                                                                                                                                                                                                                     431
                                                                                                                                                                                                                                                                                                                       525
                                                                                                                                                                                                                                                                                                                                                         371
                                                                                                                                                                                                                                                                                                                                                                                         585
                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                                                                                                                                                                              645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131 ttggtatggcttcattcagctccggttcccaacgatcaaggcgagttacatgatccccca 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              251
gaagcatttatcagggttattgtctcatgagcggatacatatttgaatgtatttagaaaa
                                                     agggaataagggcgacacggaaatgttgaatactcatactcttcctttttcaatattatt
                                                                                                                      cttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaaatgccgcaaaaa
                                                                                                    CTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAA
                                                                                                                                                                                          taccgctgttgagatccagttcgatgtaacccactcgtgcacccaactgatcttcagcat 550
                                                                                                                                                                                                                                                              gaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactctcaaggatct 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccgcagtgttatcactcatggttatggcagcactgcataattctcttactgtcatgccat 310
                                     AGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATT
                                                                                                                                                                          TACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCAT
                                                                                                                                                                                                                                              GAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCT
                                                                                                                                                                                                                                                                                                                TGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGGATAATACCGCGCCCACATAGCA
                                                                                                                                                                                                                                                                                                                                  tgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcgcgccacatagca 430
                                                                                                                                                                                                                                                                                                                                                                                    CCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                    ccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaatagtgta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCA 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No s1 sequence available.
This clone (DKRZp43411114) is available at the Please contact the RZPD: Ressourcenzentrum, Herbitander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIPS
Am Klopferspitz 18a D-82152 Martinsried, Germany
This is the 5' sequence of the clone insert
Clone from S. Wiemann, Molecular Genome Analysis, German Cancer
Research Center (DKFZ); Email s.wiemann@dkfz- heidelberg.de;
sequenced by BMFZ (Biomedical Research Center at the Charite,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST (Koehrer, et a Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Berlin-Charlottenburg, GERMANY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Berlin/Germany) within the cDNA sequencing consortium of the German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Koehrer, K., Beyer, A., Mewes, H.W., Gassenhuber, J. and Wiemann, S EST (Koehrer, et al.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 767)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genome Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Koehrer K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Vector: pSport1; 158 c 168 g 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="434 (synonym:
/tissue_type="testis"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /lab_host-"DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="DKF2p434I1114"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 650.6; DB 10
Pred. No. 4.6e-176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   221 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: clone@rzpd.de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Site_1: NotI; Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 10; Length 767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Heubnerweg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RZPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Berlin
6, 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                    670
                                                                                                                                        610
                                                                                                      286
                                                                                                                                                                          346
                                                                                                                                                                                                                                              406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
Qy
                                                                                      ρ
                                                                                                                             Db
                                                         Вþ
                                                                                                                                                             δõ
                                                                                                                                                                                                B
                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                      皮
                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 5
AL598527/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Locus
                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
602 ccgcaaaaaagggaataagggcgacacggaaatgttgaatactcatactcttcctttttc
                                                                                                                                                                                                                                                                                   362 aatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacgggataataccgcgc 421
                                                                                                                         565 CAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 165
                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225
                                                                                                                                                                                            CACATAGCAGANCTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCT 566
                                                                      cttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaatg
                                                                                                                                           caaggatettacegetgttgagatecagttegatgtaacecactcgtgcacecaactgat
                                                      CTTCAGCATCTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATG
                                                                                                                                                                                                                                                                 AATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGNATAATACCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Am Klopferspitz 18a D-82152 Martinsried, Germany This is the 5' sequence of the clone insert Clone from S. Wiemann, Molecular Genome Analysis, German Cancer Research Center (DKFZ); Email s. wiemann@dkfz- heidelberg.de; sequenced by Qiagen (Hilden/Germany) within the cDNA sequencing consortium of the German Genome Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This clone (DKFZp31301920) is available at the RZPD in Berlin Please contact the RZPD: Ressourcenzentrum, Heubnerweg 6, 140 Berlin- Charlottenburg, GERMANY; Email: clone@rzpd.de.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST (Duesterhoeft, et al.)
Unpublished (1999)
Contact: Duesterhoeft A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         No s1 sequence available
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Duesterhoeft, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae. 1 (bases 1 to 693)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL598527 693 bp mRNA
DKFZp31301920_r1 313 (synonym: hlcc2)
DKFZp31301920 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL598527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL598527.1
                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                               מ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Charlottenburg, GERM
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /lab_host="DH10B"
/note="Vector: pTriplEx2; Site_1: SfiIA; Site_2:
cDNA-collection"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="DKFZp31301920"
/clone_lib="313 (synonym: hlcc2)"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:15161218
                                                                                                                                                                                                                                                                                                                                                          63.7%;
99.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                               O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lauber, J.,
                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                        Score 638; DB 10;
Pred. No. 1.9e-172;
                                                                                                                                                                                                                                                                                                                                                                                                                                           156 g
                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mewes, H.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                               194 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gassenhuber, J. and Wiemann
                                                                                                                                                                                                                                                                                                                                                                      Length 693;
                                                                                                                                                                                                                                                                                                                                                                                                                                               3 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hominidae;
                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Euteleostomi;
                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14059
                                                      446
                                                                                      601
                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                       0
```

444 449

504 389

329

564

269

324

569 264 629

384 509

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                  BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 6
AL042640/c
                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COCUS
Query Match
Best Local S
Matches 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                   COUNT
                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         385 AATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        445 CCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTTCCTTTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgggtgttggcgggtgtcggggctggcttaactatgcggc 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgtcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttcgtctcgcgcgtttcggtgatgacggtgaaaacctctgacacatgcagctcccggaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttagaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgacg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGGTGTTGGCGGGTGTCGGGGCTTAACTATGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCGTCTCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tctaagaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccct
     639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 DKFZp434M0421_r1 434 (synonym: htes3) Homo sapiens DKFZp434M0421_5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                             Clone from S. Wiemann, Molecular Genome Analysis, German Can
Research Center (DKFZ); Email s.wiemann@dkfz- heidelberg.de;
sequenced by LMU (Ludwig Maximillans University,
                                                                                                                                                                                                                                                                                             This clone (DKFZp434M0421) is available at the RZPD in Please contact the RZPD: Ressourcenzentrum, Heubnerweg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Blum, H., Bauersachs, S., Mewes, H.W.,
EST (Blum, et al.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                 Berlin-Charlottenburg, GERMANY; Email:
                                                                                                                                                                                                                                                                                                                                 No s1 sequence available.
                                                                                                                                                                                                                                                                                                                                                Genome Project
                                                                                                                                                                                                                                                                                                                                                            Munich/Germany) within the cDNA sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                             This is the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Blum H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AL042640.1 GI:5422090
                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    мацуота; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
mmalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
(bases 1 to 688)
                                                                                                                                                                                                                                                                                                                                                                                                                             Klopferspitz 18a D-82152 Martinsried, Germany is the 5' sequence of the clone insert
                                                                                                   190
     Conservative
                                                                                                                                                              /clone="DKF2p434M0421"
/clone_lib="434 (synonym:
/tissue_type="testis"
                                                                                                                  /note="Vector:
                                                                                                                                                                                                                /db_xref="taxon:9606"
                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                              /lab_host="DH10B"
                                                                                                                                                                                                                               /organism="Homo sapiens"
                                                                                                                                               dev_stage="adult"
                                                                                                   150 c
                  63.6%;
     0;
   Score 636.6; DB 10
Pred. No. 4.7e-172;
); Mismatches 4;
                                                                                                   r: pSport1; Site_1: NotI; Site_2: SalI"
158 g     190 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gassenhuber, J.
                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46
                                                                                                                                                                                                                                                                                   clone@rzpd.de
                                                                                                                                                                                                                                                                                                                                                                 consortium
                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                               German Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-FEB-2000
                                     688;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cDNA clone
     0;
                                                                                                                                                                                                                                                                                                                                                                 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wiemann,
                                                                                                                                                                                                                                                                                                  6
      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            266
      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맒
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                   BE569261
                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttcagctccggtttcccaacgatcaaggcgagttacatgatcccccatgttgtgcaaaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ctcattggaaaacgttcttcggggcgaaaactctcaaggatcttaccgctgttgaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggttattgtctcatgagcggatacatatttgaatgtatttagaaaaaataaacaaataggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acacggaaatgttgaatactcatactcttcctttttcaatattattgaagcatttatcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCCGCAAAAAAAGGGAATAAGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agcgtttctgggtgagcaaaaacaggaaggcaaaatgccgcaaaaaaggggaataagggcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tccagttcgatgtaacccactcgtgcacccaactgatcttcagcatcttttactttcacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCATCATTGGAAAACGTTCTTCGGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCCACATAGCAGAACTTTAAAAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgctcttgcccggcgtcaatacgggataataccgggccacatagcagaactttaaaagtg
                                  CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
                                                                                                                                                    Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                 BE569261 914 bp mRNA
601331179F1 NCI_CGAP_Mam6 Mus
                                                                                                                                                                                                    NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, M
                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 914)
                                                                                                                                                                                                                                                                                                                                    BE569261.1
                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
     High quality
      Plate: LLAM8928 row: m column: High quality sequence stop: 685.
                                                                                                                                      Tissue Procurement: Jeffrey Green M.D.
                                                                                                                                                                                                                                                                                   Mus musculus
                                                                                                                                                                                                                                                                                                     house mouse
                                                                                                                                                                                                                                                                                                                     EST
                                                                                                                                                                                                                                                                                                                                      GI:9812981
                                                                                                                                                                                                                                                                                                                                                                                    musculus cDNA clone IMAGE:3708859 5',
                                                                                                                                                                                                       Mammalian
                                                                                                                                                                                                         Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46
```

149 684

209

89

be

```
RESULT 8
AL042540/c
                                                                                                            B
                                                                                                                                  Ωy
                                                                                                                                                                  밁
                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                  Q_{\mathbf{y}}
                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                              В
                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                            601
                                                                                                                                                                  541
                                                                                                                                                                                             697
                                                                                                                                                                                                                                                                                                            577
                                                                                                                                     757
                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                     637
                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                     517
                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                          457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157
                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                         TTTTCCCCGAAAAGTGCCACCTAAATGGTAAG
                                                                                                                      -tttccccgaaaagtgccacctgacgtctaag
                                                                                                                                                                              atgagcggatacatatttgaatgtatttagaaaaataaacaaataggggttccgcgcaca
                                                                                                                                                                                                                      TGAATACTCATACTCTTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTC
                                                                                                                                                                                                                                  tgaatactcatactcttcctttttcaatattattgaagcatttatcagggttattgtctc 696
                                                                                                                                                                                                                                                                                          tgagcaaaacaggaaggcaaaatgccgcaaaaaagggaataagggcgacacggaaatgt 636
                                                                                                                                                                                                                                                                                                                                     TAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGG
                                                                                                                                                                                                                                                                                                                                                    taacccactcgtgcacccaactgatcttcagcatcttttacttttactcaccagcgtttctggg 576
                                                                                                                                                                                                                                                                                                                                                                                           AAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgctcatcattgga 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gagtactcaaccaagtcattctgagaatagtgtatgcggcgaccgagttgctcttgcccg 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcccaacgatcaaggcgagttacatgatcccccatgttgtgcaaaaaagcggttagctcc 216
                                                                                                                                                                ATGAGCGGATACATATTTGAATGTATTAAGAAAAATAAACAAATAGGGGTTCCGCGCACA
                                                                                                                                                                                                                                                                             TGAGCAAAAACAGGAAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                     aaacgttcttcggggcgaaaactctcaaggatcttaccgctgttgagatccagttcgatg 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gcagcactgcataattctcttactgtcatgccatccgtaagatgcttttctgtgactggt 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCGGTCCTCCGATCGTAGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ttcggtcctccgatcgttgtcagaagtaagttggccgcagtgttatcactcattggttatg 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCGAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAAGCGGTTAGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           623;
AL042540 702 bp mRNA
DKFZp434I1621_r1 434 (synonym: htes3)
DKFZp434I1621_5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sal
Site_2: NotI; Cloned unidirectionally. Primer: Oligo of
Library constructed by Life Technologies. Investigator
providing samples: Jeffrey Green, M.D., NIH"
a 207 c 199 g 233 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
/dev_stage="5 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:10090"
/clone="IMAGE:3708859"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus |
/strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60.7%;
98.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 607.2; DB 1v,
Pred. No. 1.4e-163;
Pred. No. 1.4e-163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           musculus"
                                                                                                         632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                      Homo
                    sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 914;
                    CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
                    clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                              600
                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SalI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dī.
     밁
                             Ş
                                                           В
                                                                                    Qy
                                                                                                                   B
                                                                                                                                           ρy
                                                                                                                                                                          В
                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                546
                                                                                                                                                                           461
                                                                                                                                                                                                                                    521
                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                     247
                                                                                                                                                                                                                                                                                                                                                                                                        701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                637;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL042540
AL042540.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185
```

```
GATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTC
                                                                                                                       gatettacegetgttgagateeagttegatgtaacccactegtgcacccaactgatette
                                                                                                                                                                                                                                                  GTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACA
                                                                                                                                                                                                                                                                     9t9tatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcgcccaca
                                                                                                                                                                                                                                                                                                                                                    gccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaata
                                                                                                                                                                                                                                                                                                                                                                                                                                    ttggccgcagtgttatcactcatggttatggcagcactgc-ataattctcttactgtcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCATGTTGTGCAAAAAAGCGGTTAGCTCNTTCGGTCCTCCGATCGGTTGTCAGAAGTAAG
                                                                                                                                                                                                                                                                                                                                GCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATA
                                                                                                                                                                                                                                                                                                                                                                                                               TTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCAATAATTCTCTTACTGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccatgttgtgcaaaaaagcggttagctccttcggtcctccgatc-gttgtcagaagtaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtttggtatggcttcattcagctccggttcccaacgatcaaggcg-agttacatgatccc 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTATGGGCTTCCATTCAAGCTCCCGGTTCCCCAACGATCAAGGCGAAGTTACATGATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No s1 sequence available. This clone (DKFZp434I1621) Please contact the RZPD: Re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This is the 5' sequence of the clone insert clone from S. Wiemann, Molecular Genome Analysis, German Research Center (DKFZ); Email s. wiemann@dkfz- heidelberg. sequenced by LMU (Ludwig Maximilians University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Berlin-Charlottenburg, GERMANY; Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Am Klopferspitz 18a D-82152 Martinsried, Germany This is the 5' sequence of the clone insert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Blum H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Blum, H., Bauersachs, S., Mewes, H.W., Gassenhuber, J. and Wiemann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mammalia; Eutheria;
1 (bases 1 to 702)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Munich/Germany) within the cDNA sequencing consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Blum, et al.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Vector: pSport1;
159 c 164 g 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="DKFEp434I1631"
/clone_lib="434 (synonym:
/tissue_type="testis"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:5421995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 591.4; DB 10 Pred. No. 4.7e-159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1) is available at the RZPD Ressourcenzentrum, Heubnerw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Site_1: NotI; Site_2: 192 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone@rzpd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Heubnerweg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          German Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SalI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Berlin
6, 1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                        605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
  222
                                                                                282
                                                                                                                                                                                                                                                  402
                                                                                                                                                                                                                                                                                        425
                                                                                                                                                                                                                                                                                                                                462
                                                                                                                                                                                                                                                                                                                                                                       365
                                                                                                                                                                                                                                                                                                                                                                                                               522
                                                                                                                                                                                                                                                                                                                                                                                                                                                       305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
AG002183/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                           В
                                                                                      Qγ
                                                                                                                    밁
                                                                                                                                               δÃ
                                                                                                                                                                                 B
                                                                                                                                                                                                          ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                         Q
                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221
                                                                                                                                                                                 694
515
                                                                                                                       635
                              189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41
                                                                                                                                                   69
                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                 9
                                                                                                                                                                                                  AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCCGAAAAGTGCCACCTAAATTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgacgtcta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTA 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ttattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgtattta 725
                                                                                                                                       agttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtctacgctcgtc 128
              TTAANCCCCNTCCATCCNGTCTATTAATTG-TNCCNGGAANCTAGAGTAAGTAGTTCCCC 636
CCATGTTGTGCAAAAAGCGGTTAGCCTCTTCGGTCCTCCGATCGTTGTCAG-AGTAAGTT
                                                           GTTTGGTATGGCTTCATTCAGCTCGGNTTCCCCACGAATCAGGCGAGTTACATGAATCCC
                                                                                      gtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttacatgatcccc 188
                                                                                                                       AGTTAATAGTTTGCGCAACGTTGTTGCCAATGCTACAGGCATCGTGGTGTCACGCTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hattori,M., Ishii,K., Shiba,T. and Sakaki,Y. Homo sapiens genomic DNA, chromosome 21q Published Only in DataBase (1997) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Masahira Hattori, Kitasato University, Department of Science, Sequencing Laboratory; Kitasato 1-15-1, Sagamihara 228, Japan (E-mail:hattoriehgc.ims.u-tokyo.ac.jp, Tel:0427-78-9732,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 695)

Hattori,M., Ishii,K., Shiba,T. and Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fax:0427-78-9561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (10-NOV-1997) to the DDBJ/EMBL/GenBank databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HOMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AG002183.1 GI:2599226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AG002183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AG002183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 695)
                                                                                                                                                                                                                                                                                                                                       190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sapiens DNA, clone:PQ624A20.
                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="21"
/clone="pQ624A20"
/map="21q"
a 155 c 173 g 170
                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                          58.8%;
95.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  695 bp
                                                                                                                                                                                                                                          Score 588.2; DB 13;
Pred. No. 3.9e-158;
Pred. No. 3.9e-158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
A, 21q region, clone: PQ624A20, genomic
                                                                                                                                                                                                                                                                                                                                       170
                                                                                                                                                                                                                                                                            DB 13;
                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                              695;
                                                                                                                                                                                                                                               2;
                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42
                                                              516
                                                                                                                       576
                                                                                                                                                                                                                 68
   457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JST
                                                                                                                                                                                                                                               2
```

```
γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
 γΩ
                               밁
                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                        δÃ
                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AG014918/c
                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Locus
                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                       Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        249
                                                328 gtgactggtgagtactcaaccaagtcattctgagaatagtgtatgcggcggaccgagttgc 387
                                658 GTGACTGGTGAGTACTCAACCAGTCATTCTGAGAAATAGTGTATGCGGCGACCGAGTTGC 599
388 tcttgcccggcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgctc 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactgatcttcagc 548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaagggaataagggcgacacggaaatgttgaatactcatactcttcctttttcaat 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tatgcggcgaccgagttgctcttgcccggcgtcaatacggggataataccgcgcccacatag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaatagtg 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAAT 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCC
                                                                                          610;
                                                                                                                                                                                                                                                                                                                                                                          Submitted (23-SEP-1998) to the DDBJ/EMBL/GenBank databases. Masahira Hattori, Kitasato University, Department of Science, JST Sequencing Laboratory; Kitasato 1-15-1, Sagamihara 228, Japan (E-mail:hattori@hgc.ims.u-tokyo.ac.jp, Tel:0427-78-9732,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AG014918
AG014918.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AG014918 658 bp D. Homo sapiens genomic DNA,
                                                                                                                                                                                                                                                                                                    Homo sapiens genomic DNA, chromosome Published Only in DataBase (1998) In
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       survey sequence.
                                                                                                                                                                                                                                                                                                                                Hattori,M., Ishii,K.,
                                                                                                                                                                                                                                                                                                                                                                Fax:0427-78-9561
                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 658)
Hattori,M., Ishii,K., Toyoda,A., Shiba,T. and Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens DNA, clone:B335C24BB28.
                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                (bases 1 to 658)
                                                                                                                                                                                  164
                                                                                         Conservative
                                                                                                                                                                                  മ
                                                                                                                                                                               /clone="B335C24BB28"
/map="21q"
150 c 158 g
                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="21"
                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:3650162
                                                                                                                                                                                                                                                                         .658
                                                                                                        57.6%;
96.5%;
                                                                                            0
                                                                                            Score 576.8; DB 13;
Pred. No. 7.3e-155;
0; Mismatches 19;
                                                                                                                                                                                                                                                                                                                                Toyoda, A., Shiba, T. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
(A, 21q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       region, clone:
                                                                                                                                                                                   183
                                                                                                                                                                                   t
                                                                                                                                                                                                                                                                                                      press
                                                                                                                                                                                   ω
                                                                                             Indels
                                                                                                                        Length
                                                                                                                                                                                   others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          в335С24вв28,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08-FEB-1999
                                                                                                                           658;
                                                                                             ω
••
                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           277
                                                                                             2;
```

```
JOURNAL
FEATURES
BASE
ORIGI
                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                            AG000364/c
LOCUS
                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                          TITLE
                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                    AUTHORS
 COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttccgcgcacatttccccgaaaagtgccacctgacgtctaagaaaccattattatcatga 805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cacggaaatgttgaatactcatactcttccttttcaatattattgaagcatttatcagg 685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acggtgaaaacctctgacacatgcagctcccggagacggtcacagcttgtctgtaagcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cattaacctataaaaataggcgtatcacgaggccctttcgtctcgcgcgtttcggtgatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGNTCACAGCTTGTCTGTAAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTCGTCTCGCGCGTTTCGGTGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gcgtttctgggtgagcaaaaacaggaaggcaaaatgccgcaaaaaaggggaataagggcga 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCATTGGAAAACGTTCTTCGGGGGCGAAAACTCTCAAGGATCTTACCGCCTGTTTGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atcattggaaaacgttcttcggggcgaaaactctcaaggatcttaccgc--tgttgagat 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 793)
Hattori,M., Ishii,K., Shiba,T. and Sakaki,Y.
Homo sapiens genomic DNA, chromosome 21q
Published Only in DataBase (1997) In press
                                                                                                                                                                                       Submitted (31-OCT-1997) to the DDBJ/EMBL/GenBank databases.

Masahira Hattori, Kitasato University, Department of Science, JST Sequencing Laboratory; Kitasato 1-15-1, Sagamihara 228, Japan (E-mail:hattori@hgc.ims.u-tokyo.ac.jp, Tel:0427-78-9732,
                                                                                                                                                                                                                                                                                                                                                                 survey sequence.
AG000364
AG000364.1 GI:2579172
                                                                                                                                                                                                                                                                                              Eukaryota;
Mammalia; I
                                                                                                                                                                                                                                                                                                                                                        GSS
                                                                                                                                                                                   Fax:0427-78-9561
                                                                                                                                                                                                                                                                 Hattori, M., Ishii, K., Shiba, T. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                        Homo sapiens DNA, clone:PQ119B8X30.
                                                                                                                                                                                                                                                                              nmalia; Eutheria; Primates; (bases 1 to 793)
                                                                                                                                                                                                                                                                                                                                                                                                           sapiens genomic DNA,
                                                                                                                                                                                                                                                     Submission
          /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="21"
/clone="p9119B8X30"
/map="21q"
a 185 c 207 g 180
                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                          Metazoa;
                                                                                                                                                                                                                                                                                                          Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                        21q region, clone:
                                                                                                                                                                                                                                                                                         Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
             ς+
             16
                                                                                                                                                                                                                                                                                                                                                                                                           PQ119B8X30,
                                                                                                                                                                                                                                                                                                                                                                                                                          06-FEB-1999
                                                                                                                                                                                                                                                                                                                                                                                                          genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
```

```
SOURCE
ORGANISM
                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                             ζQ
                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                 AG009765/c
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                          AUTHORS
TITLE
                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 594
                                                                                              JOURNAL
                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                             598 aatgccgc 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     574
                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                                                                                                                                                                                                                                                                                               34 AATGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       t-ctcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgttgtacccaac
                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCACATAGCAGAACTTTAAAAGTGCTCTTCATTGGAANNTCGTTCTTCGGCGCGAAANC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gccacatagcagaactttaaaagtgctcattggaaaa-cgttcttcggggcgaaaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  agaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaataccgggataataccgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tgtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aagtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctcttac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGTAAGTTGGCCGCAGTGTTATCACTCATGGTNATGGCAGCACTGCATAATTCTCTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCCATCGTGGTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agttcgccagttaatagtttgcgcaacgttgttgccattgctacagg-catcgtggtgtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagt
                                                                                                                                                                                                                    Homo sapiens genomic DN
survey sequence
AG009765 AG003576
AG009765.1 GI:3289751
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTAC
                                                       Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 696)

Hattori,M., Ishii,K., Toyoda,A., Shiba,T. and Sakaki,Y.

Homo sapiens genomic DNA, chromosome 21q

Published Only in DataBase (1998) In press

2 (bases 1 to 696)

Hattori,M., Ishii,K., Toyoda,A., Shiba,T. and Sakaki,Y.
Submitted (06-JUL-1998) to the DDBJ/EMBL/GenBank databases Masahira Hattori, Kitasato University, Department of Science Sequencing Laboratory; Kitasato 1-15-1, Sagamihara 228, Jaj
                                             Direct Submission
                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                     Homo sapiens DNA, clone:P8G4SpN15
                                                                                                                                                                                                                                                                                                   AG009765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                               27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55.9%;
97.7%;
                                                                                                                                                                                                                                                                                                   696 bp
                                                                                                                                                                                                                                                                                  DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 559.2; DB 13
Pred. No. 8.6e-150;
                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                 VA GSS 14-APR-1999
21g region, clone: P8G4SPN15, genom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                Science,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                 genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                            35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                JST
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                              BE573230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                             VERSION
                                                                                           ACCESSION
                                                                                                                    DEFINITION
REFERENCE
                                                                                                                                   Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     620
                                                                                                                                                                                                                                                      140
                                                                                                                                                                                                                                                                                                                                   418
                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                        358
                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  560
                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 cctgcaactttatccgcctccatccagtctattaattgttg-ccgggaagctagagtaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCCGGGAAGCTAGAGTAAG
                                                                                                                                                                                                 tgagaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaatacggggataatacc
                                                                                                                                                                                                                                                                                                                                                                                                                               actgtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agaagtaagttggccgcagtgttatcactcatggttatggcagcactgcataattctctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acatgatcccccatgttgtgcaaaaaagcggttagctccttcggtcctcccgatcgttgtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacgctcgtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagtt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tagttcgccagttaatagtttgcgcaacgttgttgccattgctacagg-catcgtggtg- 117
                                                                                                                                                                                                                                                       CTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCCACTCGTGCACCCAAC
                                                                                                                                                                                                                                                                  ctctcaaggatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaac 537
                                                                                                                                                                                                                                                                                                                                                                                                                    ACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCACGCTCGTCTTTGGTATGGCTTCATTCAGCTCCCGGTTCCCAACGATCAAGGCGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAGTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCCATCGTGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            On Feb 5, 1999 this sequence version replaced gi:2706702 AG003576: Submitted (19-Dec-1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (E-mail:hattori@hgc.ims.u-tokyo.ac.jp, Tel:0427-78-9732, Fax:0427-78-9561)
Eukaryota; Metazoa;
Mammalia; Eutheria;
1 (bases 1 to 696)
                                                                                                                  BE573230 696 bp mF
601333125F2 NCI_CGAP_Mam6
                                                                                                       mRNA sequence
                                        Mus musculus
                                                                              BE573230.1 GI:9816950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                    house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="P8G4SpN15"
/map="21q"
165 c 185 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55.3%;
99.5%;
             Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 554; DB 13;
Pred. No. 2.6e-148;
0; Mismatches 0;
                                                                                                                                  mRNA
                                                                                                                     Mus musculus
             Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       162
                                                                                                                     cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         others
                                                                                                                     15-AUG-2000
IMAGE:3710479 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          φ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                            141
                                                                                                                                                                                                                                                                                                                                      477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
                                                                                                                                                                                                                                                                                                                                                                                           417
                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                     261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      237
               Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ψ
```

à

```
BASE CORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                            δð
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
밁
                         Qy
                                                       밁
                                                                               Qy
                                                                                                               밁
                                                                                                                                        δÃ
                                                                                                                                                                        뫄
                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                239
 478
                                                                                                                                           511
                                                                                                                                                                         299
                                                                                                                                                                                                     451
                                                                                                                                                                                                                                                              391
                                                                                                                                                                                                                                                                                                                     331
                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                             271
                                                                                                                                                                                                                                                                                                                                                                                                                                      211
                                                                                                                358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                151 tccggttcccaacgatcaaggcgagttacatgatcccccatgttgtgcaaaaaagcggtt 210
                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   togatgtaacccactcgtgcacccaactgatcttcagcatcttttactttcaccagcgtt 570
                                                                                                                                                                     tgcccggcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgctcatc 450
                                                                                                                                                                                                                                                                                      aaatgttgaatactcatactcttcctttttcaatattattgaagcatttatcagggttat 690
                                                                     tctgggtgagcaaaaacaggaaggcaaaatgccgcaaaaaagggaataagggcgacacgg
                                                                                                                                                                                                                                                                                                                                                                gttatggcagcactgcataattctctttactgtcatgccatccgtaagatgcttttctgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATG-TGTGCAAAAAAGCGGTT
 AAATGTTGAATACTCATACTCTTCCTTTTTCAATATTA-TGAAGCATTTATCAGGGTTA-
                                                       GTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
cDNA Library Preparation: Life Technolo
cDNA Library Arrayed by: The I.M.A.G.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov plate: LLAM8933 row: a column: 08 High quality sequence stop: 696.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"

a 157 c 152 g 191 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating
/dev_stage="5 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:3710479"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54.8%;
98.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Technologies,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ductal carcinoma"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gene Collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 696;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                          477
                                                                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                                                                                              118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
```

```
В
                                                                                                                                δÃ
                 Ş
                                              В
                                                                       QY
                                                                                                                                                              ДЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 1
BE569687
                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                 226
                                               118
                                                                          166
                                                                                                                                  106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        751 cgcacatttccccgaaaagtgc 772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59
                                                                                                                                                                                          46
                                                                                                                                                               \vdash
                                         tcaaggcgagttacatgatcccccatgttgtgcaaaaaagcggttagctccttcggtcct 225
ccgatcgttgtcagaagtaagttggccgcagtgttatcactcatggttatggcagcactg
                                                                                                                 gaagctagagtaagttcgccagttaatagtttgcgcaacgttgttgccattgctaca 105
                                                                                                    GGCATCGTGGTCTCACGCTCGTCG-TTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGA 117
                                                                                                                                                             GAAGCTAGAGTAAGTTCGCCAGTTAATAG-TTGCGCAACGTTGTTGCCA-TGCTACA 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCACATTTCCCCGGAAAGTGC 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  http://image.llnl.gov
Plate: LLAM8931 row: d column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA sequence.
BE569687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        High quality sequence stop: 615.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BE569687 801 bp mRNA EST 15-AUG-2000 601332450F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:3709789 5',
                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BE569687.1 GI:9813407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 801)
                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                         providing samples: Jeffrey Green, M.D., NIH" _{1} 194 c 177 g 217 t
                                                                                                                                                                                                                                                                                                                                 /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: So
Site_2: NotI; Cloned unidirectionally. Primer: Oligo
Library constructed by Life Technologies. Investigator
                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
/dev_stage="5 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                    /strain="FVB/N"
/db_xref="taxon:10090"
/clone="IMAGE:3709789"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         location/Qualifiers
                                                                                                                                                                                                                                 54.6%;
94.3%;
                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                   Score 546.4; DB 10; Pred. No. 4.1e-146;
                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                801;
                                                                                                                                                                                                                                                                                                                                     Investigator
                                                                                                                                                                                                                    16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Murinae; Mus.
                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                                                                                                                    12;
                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             204
                                                          FEATURES
                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL041808/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                         AUTHORS
                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                              EST
                                                                                                                                                                                                                                                                                                                                                                                                         AL041808
                                                                                                                                                                                                                                                                                                                                                               human
```

```
178 CCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTG 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacatttccccgaaaagtgc 772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAGCGGGATCCATATTTGAACTGTACTTAGAACAATTAAACAACTAAGGGGTACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -tactcatactcttcctttttcaa--tattattgaagcattt-atcagggttattgtctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACATATCCCCGAAAAGTGC 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atgagc-ggatacatatttgaa-tgtatttagaaaataaacaaa--taggggttccgcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACTCCATACTCTTTTTCCAAGTATTTATCGAAGCATTTCATCAGGCTTATGGTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAACAGGAAGGCCAAAATGCCGCAAAAAAGGGAATAACGGGCGACACGGAAATTGTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGTGCACCCAAATGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcgtgcacccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ttcggggcgaaaactctcaaggatcttaccgctgttgagatccagttcgatgtaacccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGATAATACCGCGCCACATAGCAGAACTTTAACAAGTGCTCATCATTGGAAAACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               accaagtcattctgagaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cataattctcttactgtcatgccatccgtaagatgcttttctgtgactggtgagtactca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cgggataataccgcgccacatagcagaactttaa-aagtgctcatcattggaaaacgttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCA
                                                                                                                                                                                                                        sequenced by MediGenomix (Martinsried/Germany) within the cDNA sequencing consortium of the German Genome Project. No s1 sequences
                                                                                                                                                                                                                                                                             Am Klopferspitz 18a D-82152 Martinsried, Germany
This is the 5' sequence of the clone insert
Clone from S. Wiemann, Molecular Genome Analysis, German Cancer
Research Center (DKFZ); Email s.wiemann@dkfz- heidelberg.de;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST (Ottenwaelder, et al.) 
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ottenwaelder,B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL041808 554 bp mRNA ES: DKFZp434B0518_rl 434 (synonym: htes3) Homo DKFZp434B0518 5', mRNA sequence.
                                                                                                                                                                 This clone (DKFZp434B0518) is available at the RZPD in Berlin
                                                                                                                                                                                                 available.
                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Ottenwaelder B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wiemann,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mammalia; Eutheria; Primates; 1 (bases 1 to 554)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL041808.1
                                                                                                         contact the RZPD: Ressour
- Charlottenburg, GERMANY;
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:5421154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Obermaier, B.,
                                                                                                            Ressourcenzentrum, Heubnerweg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mewes, H.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gassenhuber,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-FEB-2000
cDNA clone
                                                                                                                                                                                                                        No s1 sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
```

/clone="DKFZp434B0518"

```
Q_{\mathbf{y}}
                                 В
                                                   Qy
                                                                               B
                                                                                                   δõ
                                                                                                                          Ъ
                                                                                                                                                   Qγ
                                                                                                                                                                            В
                                                                                                                                                                                                QY
                                                                                                                                                                                                                           ДЪ
                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                              ΩУ
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 54.5%;
Best Local Similarity 99.3%;
Matches 548; Conservative
766 aaagtgccacct 777
                                                        706
                                                                                 134
                                                                                                       646
                                                                                                                               194
                                                                                                                                                                             254
                                                                                                                                                                                                   526
                                                                                                                                                                                                                           314
                                                                                                                                                                                                                                                   466
                                                                                                                                                                                                                                                                                                  406
                                                                                                                                                                                                                                                                                                                          434
                                                                                                                                                                                                                                                                          374
                                                                                                                                                                                                                                                                                                                                                                        494
                                                                                                                                                                                                                                                                                                                                                                                              286
                                                                                                                                                                                                                                                                                                                                                                                                                 74
                                                                            atactcttcctttttcaatattattgaagcatttatcagggttattgtctcatgagcgga 705
                                                                                                                          cgtgcacccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaa 585
                                          tacatatttgaatgtatttagaaaaataaacaaataggggttccgcgcacatttcccccga 765
                                                                                                                                                                                                                      tcggggcgaaaactctcaaggatcttaccgctgttgagatccagttcgatgtaacccact 525
                                                                                                                                                                                                                                                                     GGGGATAATTCCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCT 315
                               TACATATTTGAATGTATTTAGAAAAATAACCAAATAGGGGTTCCGCGCACATTTCGCCGA
                                                                                                                                                                                                                                                                                                                                   accaagtcattctgagaatagtgtatgcggcgaccgagttgctcttgcccggcgtcaata 405
                                                                                                                                                                                                                                                                                                                                                                    CATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCA 435
                                                                                                                                                                                                                                                                                                                                                                                 cataattctcttactgtcatgccatccgtaagatgcttttctgtgactggtgagtactca 345
                                                                                                                                                                                                                                                                                                                      ACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATA 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="434 (synonym: htes3)"
/tissue_type="testis"
/dev_stage="adult"
/lab_host="DH10B"
/note="Vector: pSport1; Site_1: Not1; Site_2: SalI"
/ 123 c 124 g 155 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 545.6; DB 10; Length Pred. No. 6.5e-146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
```

Search completed: January 17, Job time: 8646 sec

2002, 14:58:45

n			
•			
-			
			•

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                          GenEmbl:*
1: gb_ba:*
2: gb_htg:
3: gb_in:*
  January 17, 2002, 16:25:58; Search time 5101.32 Seconds (without alignments) 3233.904 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1472140 segs, 8248589755 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-740-211-14_COPY_1_1000
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cgcccctgcaggcagctgcg.....caggcctcattggagcccta 1000
                                                                                                                                                                                                                          gb_pr:*
gb_ro:*
gb_sts:*
gb_sy:*
gb_un:*
                                                                                                                                                                                                                                                                                                                          gb_ba:*
gb_htg:*
gb_in:*
em_htgo_hum:*
em_htgo_inv:*
em_htgo_rod:*
em_htg_hum:*
em_htg_inv:*
em_htg_rod:*
em_htg_other:*
                                                                 em_sts:*
em_sy:*
em_un:*
em_vi:*
                                                                                                        em_ov:*
em_pat:*
em_ph:*
em_pl:*
em_ro:*
                                                                                                                                                                em_hum:*
em_in:*
em_om:*
                                                                                                                                                                                             em_ba:*
em_fun:*
                                                                                                                                                                                                                                                                                    gb_ph:*
                                                                                                                                                                                                                                                                                              gb_pat:*
                                                                                                                                                                                                                                                                                                        gb_ov:*
                                                                                                                                                        em_or:*
                                                                                                                                                                                                                 gb_vi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                              2944280
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

SOURCE ORGANISM REFERENCE AUTHORS TITLE JOURNAL FEATURES SOURCE BASE COUNT ORIGIN	RESULT 1 AR138378 LOCUS DEFINITION ACCESSION VERSION KEYWORDS	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Result No. Sco
Unknown. Unknown. Unclassi. 1 (base Couto,L.) Adeno-ass target co Patent: 1	AR138378 Sequence AR138378 AR138378	000 1000 1000 1000 1000 1000 1000 1000	Query ne Match
n. sified. sified. yses 1 to 4999; ses 1 to 2005i, L.B., Colosi, associated vi cells cells US 6200560- Location/O 1. 0499 /organism=' 5 a 1151 c	4999 14 from	4999 11933 11933 11933 11933 11933 5035 8831 8831 8831 8831 9009 9009 9009 9009 9009 9009 9009 90	Length D
cus vectors for A 14 13-MAR-2001 Halifiers "unknown" 1155 g 1318	ALIGNMENTS 99 bp DNA m patent US 6200560.	,	B ID
expression of factor VIII by;	PAT 16-JUN-2001	AR138378 Sequence AR146888 Sequence AR146887 Sequence AR146887 Sequence AR034084 Sequence AR034084 Sequence AR071306 Sequence AR071306 Sequence E00527 Complete cD AX052730 Sequence 171409 Sequence 171409 Sequence 171409 Sequence 13191 Human mRNA M14113 Human coagu AR003710 Sequence AR126884 Sequence 131901 Sequence 17040 Human coagu AR003718 Sequence 1707042 Artificial 108345 Sequence 1707043 Sequence 1708345 Sequence 1708345 Sequence 1708345 Sequence 1708347 Sequence 1708447 Sequence 1708648 Sequence 1708648 Sequence 1708648 Sequence 1708649 Sequence 1702047 Sequence 1702047 Sequence 1702047 Sequence 1702047 Sequence 1702047 Sequence 1704049489 Canis fam AR003712 Sequence 1704749489 Canis fam AR003712 Sequence 170474741 Sequence 17047474 Sequence 170474 Seque	Description

ρy

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 1000;
                              961
      961
                                                      901
                                                                             901
                                                                                                       841
                                                                                                                                                         781
                                                                                                                                                                               781
                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
  agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                                                                                                 atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                        agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt 780
                                                                                                                                                                                                                                                                    gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catctactgacactgacatccactttttcttttttctccacaggtatcgatccaccatgca
                                                                                                                                                      ATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAGGGAGAA
                                                                                                                                                                                                      AGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGT
                                                                                                                                                                                                                                                        GCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATAC
                                                                                                                                                                                                                                                                                                         AGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACATCGCTAA
                                                                                                                                                                                                                                                                                                                      agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttccaccatcgctaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATCTACTGACACCACCACTTTTTCTTTTTCTCCACAGGTATCGATCCACCATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGCAGTAGTCGCCGTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCCCGCGCGGCAGGTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtgcagtagtcgccgtgaacgttctttttcgcaacgggttttgccgccccgcgggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCCTGCAGGCAGCTGCGCGCTCGCTCACTGAGGCCGCCCGGGCAAAGCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cycccctycayycayctycyctcyctcyctcactyayyccyccycgygcaaaycccygy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1000; DB 6; Pred. No. 6.3e-269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
Qy
```

Qy

밁

gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac

Qy

멍

Qy

밁 ρy Db Qy В Qy Ъ Qy В Qy 밁 Qy 밁 Qy В Ωy B Qy Ъ δÃ В Š В Qγ

B

```
Qy
 DЬ
               QΥ
                                      В
                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
FEATURES
                                                      Qy
                                                                         В
                                                                                                              뫄
                                                                                                                             Qy
                                                                                                                                                  В
                                                                                                                                                                  δÃ
                                                                                                                                                                                       밁
                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
AR146888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1000;
                                                                                                               421
                                                                           481
                                                                                  481 aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                   361
                                                                                                                                                                     361
                                                                                                                                                                                        301
                                                                                                                                                                                                          301
                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                           61
gtgcagtagtcgccgtgaacgttcttttcgcaacgggtttgccgccccgcgggcaggtaa
                                                                                                                       aatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgccaccag
                                                                                                                                                            catctactgacactgacatccactttttctttttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                     AAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGA
                                                                                                                                                  CATCTACTGACACTGACATCCACTTTTTCTTTTTTCTCCACAGGTATCGATCCACCATGCA
                                                                                                                                                                                                                                                                                                  gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                 AATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAG
                                                                                                                                                                                                                                                                                                                                                                                     cgccctgcaggcagctgcgctcgctcgctcactgaggccgcccggggcaaagcccggg
                                                                                                                                                                                                                                                                                                                                        CGCCCCTGCAGGCAGCTGCGCGCCTCGCTCACTGAGGCCGCCCGGGCAAAGCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AR146888
Sequence 14
AR146888
AR146888.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 4999)
Couto, L.B., Colosi, P.C. and Qian, X.
Adeno-associated vectors for expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unknown.
Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent: US 6221349-A 14 24-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1375
                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14 from patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1151 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4999 bp
                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1155
                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1000; DB 6; Pred. No. 6.3e-269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6221349
                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
  660
                                      600
                                                                                                              480
                                                                                                                                                  420
                                                                                                                                                                    420
                                                                                                                                                                                                                           300
                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
AR138377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q_{\overline{Y}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                δÃ
                                                                                                                                            밁
                                                                                                                                                                  Qy
                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
밁
                Q
                                             망
                                                                   Q
                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                               121
 301
                                                241
                                                                                               181
                                                                                                                       186
                        291
                                                                                                                                                                                              61
                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAGGGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGTTGGTGT
                                                                                               TTGTTCTTAAATACCATCCAGGGAATGTTTGTTCTTAAATACCATCTACAGTTATTGGTT
                                                                                                                                                                 actaggggttcctgcggcgcacgcgtggtggcgcgggggtaaa-----ctgggaaagt 185
                                                                                                                                                                                                         tttggtcgcccggcctcagtgagcgagcgcgcgcgcagagagggagtggccaactccatc 132
                                                                                                                                                                                                                                            CAGCTGCGCGCTCGCTCACTGAGGCCGCCCGGGCCAAAGCCCGGGCGTCGGGCCACC
                                                                                                                                                                                                                                                       cagctgcgcgctcgctcgctcactgaggccgccggggcaaagcccggggcgtcgggcgacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGAAGATGATAAAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGA
                                                AAAGAAGTATATTAGAGCGAGTCTTTCTGCACACAGATCACCTTTCCGGGTGCCGCCCCT
                                                                                                                    gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt
 AGGCAGGTAAGTGCCGTGTGTGGTTCCCGCGGGCCTGGCCCTCTTTACGGGTTATGGCCCT
             gcagtagtcgccgtgaacgttctttttcgcaacgggtt---
                                                                                                                                                                                             TTTGGTCGCCCGGCCTCAGTGAGCGAGCGGGGCGCAGAGAGGGGAGTGGCCAACTCCATC
                                                                                                                                            ACTAGGGGTTCCTGCGGCCGCCCAGGGAATGTTTGTTCTTAAATACCATCCAGGGAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
AR138377
                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 11933)
Couto, L.B., Colosi, P.C. and Qian, X.
Adeno-associated virus vectors for
                                                                                                                                                                                                                                                                                                                                                                                                                 target cells
patent: US 6200560-A 13 13-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AR138377.1 GI:14480722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR138377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                  þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11933 bp
13 from patent
                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
1. .11933
                                                                                                                                                                                                                                                                                                                                                                /organism="unknown"
2818 c 2717 g
                                                                                                                                                                                                                                                                                                      73.6%;
86.1%;
                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                      Score 736.2; DB 6;
Pred. No. 4.4e-195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6200560
                                                                                                                                                                                                                                                                                                                                                                  3140
                                                                                                                                                                                                                                                                                                                                                                                                                                          for expression
                                                                                                                                                                                                                                                                                             118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PAT
                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                 Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                          ٥f
                                                                        tgccgccccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-JUN-2001
                                                                                                                                                                                                                                                                                             23;
                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
  360
                          350
                                                 300
                                                                         290
                                                                                                 240
                                                                                                                                                180
                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                             4;
```

δÃ

cagctgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc

Matches

870;

Conservative

0;

Query Match
Best Local Similarity

73.6%;

Score 736.2; DB 6; Pred. No. 4.4e-195; 0; Mismatches 118;

Indels

23;

Gaps

4.

```
рь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                멍
                                                                        FEATURES
                                                                                                                              REFERENCE
                                                                                                                                                                                                                              AR146887
                               ORIGIN
                                         BASE COUNT
                                                                                                                                                                SOURCE
                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                    VERSION
                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                         RESULT
                                                                                                          AUTHORS
TITLE
                                                                                     JOURNAL
                                                                                                                                                    ORGANISM
                                                               source
                                                                                                                                                                                                                                                                                                950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               410
                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                770
                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           351
                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCACCATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    totcatgtggacotggtaaaagaottgaattcaggcotcattggagcocta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                      gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtttatgatacagtggtcattacacttaagaacatggcttccccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt
                                                                                                                                                                                                                                                                           TCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCTCATTGGAGCCCTA 1011
                                                                                                                                                                                                                                                                                                                                                                                                           GCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAG
                                                                                                                                                                                              AR146887
Sequence 13
AR146887
                                                                                               cells
                                                                                                          1 (bases 1 to 11933)
Couto, L.B., Colosi, P.C. and Qian, X.
Adeno-associated vectors for expres
                                                                                                                                                      Unknown
                                                                                                                                                                 Unknown.
                                                                                                                                                                                     AR146887.1
                                                                                     Patent:
                                                                                                                                           Uncl
                                                                                                                                           assified
                                          ø
                                                                                     US 6221349-A 13 24-APR-2001;
                                         organism="unknown"
2818 c 2717 g
                                                                        Location/Qualifiers
                                                                                                                                                                                                        11933 bp
from patent
                                                                .11933
                                                                                                                                                                                                            DNA
                                                                                                           for expression
                                                                                                                                                                                                             6221349
                                                                                                             of
                                                                                                                                                                                                                       PAT
                                                                                                             factor
Length 11933;
                                                                                                                                                                                                                       08-AUG-2001
                                                                                                             γģ
                                                                                                             target
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              409
                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                   900
```

Indels Length 5035;

0

Gaps

0

126 507

```
RESULT
AR034084
    DEFINITION
ACCESSION
                        LOCUS
                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                           ρy
                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                          961
                                                                                                                 901
                                                                                                                                    890
                                                                                                                                                       841
                                                                                                                                                                           830
                                                                                                                                                                                                781
                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                   770
                                                                                                                                                                                                                                                         710
                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                 650
                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                               530
                                                                                                                                                                                                                                                                                                                                        590
                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                      470
                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                             410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ш
                                                                      gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                              gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                             GCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGCTGAATATGATGATCAGACCAGT
                                                                                                                                                                                                                                     GTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCAT
                                                                                                                                                                                                                                                                            AACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAG
                                                                                                                                                                                                                                                                                     agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                  tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcttaaataccatctactgacactgacatccactttttctttttctccacaggtatcga-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCACCATGCAAATAGAGCTCTCCACCTGCTTCTTTCTGTGCCTTTTTGCGATTCTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAGAAGTATATTAGAGCGAGTCTTTCTGCACACAGATCACCTTTCCGGGTGCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttggtcgcccggcctcagtgagcgagcgagcgcgcagagagggggggtggccaactccatc 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGCAGGTAAGTGCCGTGTGGTGCGTTCCCGCGGGCCTGGCCTCTTTACGGGTTATGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcagtagtcgccgtgaacgttcttttcgcaacgggtt-----tgccgccccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGTTCTTAAATACCATCCAGGGAATGTTTGTTCTTAAATACCATCTACAGTTATTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatgtcgtgtactggctcc---gcctttttcccgagggtgggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTGGTCGCCCGGCCTCAGTGAGCGAGCGAGCGCGCAGAGAGGGAGTGGCCAACTCCATC 120
  AR034084
Sequence
AR034084
            1 from
           5035 bp DI
            DNA
JS 5869292
                      PAT
                      29-SEP-1999
                                                                                                                                  949
                                                                                                                                                      900
                                                                                                                                                                          889
                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                        769
                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                              589
                                                                                                                                                                                                                                                                                                                                                                                                                     529
                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   290
                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                               709
                                                                                                                                                                                                                                                                                                                                      649
                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                           RESULT
AR071306
                                                 LOCUS
                                                                                                   밁
                                                                                                                     QΥ
                                                                                                                                          Ъ
                                                                                                                                                             Qγ
                                                                                                                                                                                   DЬ
                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 600; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                   607
                                                                                                                                            547
                                                                                                                                                                                   487
                                                                                                                                                                                                                          427
                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                         307
                                                                                                                                                                                                                                                                                                                            688
                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          187
                                                                                                                                                                                                                                                                                                                                                                                                         568
                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                      σ
                                                                                                              cattggagcccta
                                                                                                                                          ttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttctgagggagc
                                                                                                                                                                                                                                                                                                      CATTGGAGCCCTA
                                                                                                                                                                                   AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                            aagccatacatatgtctggcaggtcctgaaagagaatggtccaattggcctctgacccact
                                                                                                                                                                                                                         TGAATATGATGATCAGACCAGTCAAAGGGAGAAAGAAGATGATAAAGTCTTCCCTGGTGG
                                                                                                                                                                                                                                    tgaatatgatgatcagaccagtcaaagggagaaagaagatgataaagtcttccctggtgg
                                                                                                                                                                                                                                                                                                                                                        agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct
                                                                                                                                                                                                                                                                                                                                                                                                 AGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                     TAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                        gtcatgggactatatgcaaagtgatctcggtgagctgcctgtgggacgcaagatttcctcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact
                             Sequence
AR071306
                    AR071306
                                                 AR071306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hybrid proteins with modified active Patent: US 5869292-A 1 09-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Voorberg, J.J
Hybrid prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR034084.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D
                                       ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="unknown" 1127 c 1110 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. .5035
                                       from patent US
                                                                                                                      1000
                                                                                                   619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ť
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:5949689
                                                 5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59.2%;
97.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5035)
                                                 dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 592.2; DB b;
Pred. No. 8.9e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               +
```

747

306 687 246 627 186

366

927 486 867 426 Qy

Qy

В

ΩĀ Ъ Qy Ъ Qy В Qy В Qy

18-FEB-2000

```
KEYWORDS
SOURCE
ORGANISM
                                                                                         RESULT
AR112722
                                                                                                                                                 ΩV
                                                                                                                                                                        В
                                                                                                                                                                                         Qy
                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
 REFERENCE
                                                  VERSION
                                                                      DEFINITION
                                                           ACCESSION
                                                                                  Focus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                  487
                                                                                                                                                                                                                                                         427
                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                          307
                                                                                                                                                                                                                                                                                                                                                             889
                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                     628
                                                                                                                                                                                                                                                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                                                                                                             568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                   607
                                                                                                                                                      988
                                                                                                                                                                          547
                                                                                                                                                                                                                                     868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  388 tettttetecacaggtategatecaceatgeaaatagagetetecacetgettettet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7
                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact 507
                                                                                                                                                                                                                                                                                                  CATTGGAGCCCTA 619
                                                                                                                                            cattggagcccta 1000
                                                                                                                                                                                    gtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaattcaggcct 987
                                                                                                                                                                                                                           aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact
                                                                                                                                                                                                                                                         aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc
                                                                                                                                                                                                                                                                                                                                                                                  AGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                            agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct
                                                                                                                                                                                                                                                                                                                                                                                                                           TAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                   tagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgt
                                                                                                                                                                           GTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCT
                                                                                                                                                                                                                   AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                                                                                                                                                                          AGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hybrid proteins with modified activ
Patent: US 5910481-A 1 08-JUN-1999;
Cocation/Qualifiers
1.5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unknown
Unclassified.
1 (bases 1 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unclassified
                                                           AR112722 5035 bp DI
Sequence 1 from patent US
AR112722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Voorberg,J.J
                    Unknown
                                Unknown
                                                   AR112722.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    עם
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="unknown"
1127 c 1110 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59.2%;
 ç
                                                   GI:14092622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 592.2; DB 6; Pred. No. 8.9e-155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                        6130203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1314 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 5035;
                                                                                  16-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    447
                                                                                                                                                                                                                                                                                                                                                                                                      687
                                                                                                                                                                                                                                                                                                                                                                                                                                              627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                            606
                                                                                                                                                                                                                   546
                                                                                                                                                                                                                                       927
                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                               867
                                                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                                      807
                                                                                                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                              747
                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
```

```
JOURNAL
FEATURES
                                                      DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                  RESULT
E00527
                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                밁
                        REFERENCE
                                                                                                                         Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
  AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                     487
                                                                                                                                                                                                                                                                                                                                                                                748
                                                                                                                                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                                                                                                                            889
                                                                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388
                                                                                                                                                                                607
                                                                                                                                                                                                                                               928
                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                                                                                                                                                                                                            367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                              œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600;
                                                                                                                                                                                                                                                                                                                                                                                                      cattggagcccta 1000
                                                                                                                                                                                                                        gtcatgggactatatgcaaagtgatctcggttgagctgcctgtggacgcaagatttcctcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tettttteteeacaggtategateeaceatgeaaatagageteteeacetgettettee
                                                                                                                                                                                CATTGGAGCCCTA
                                                                                                                                                                                                                                                                     AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                                                                                                               aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact 927
                                                                                                                                                                                                                                                                                                                TGAATATGATGATCAGACCAGTCAAAGGGAGAAAGAAGATGATAAAGTCTTCCCTGGTGG
                                                                                                                                                                                                                                                                                                                            tgaatatgatgatcagaccagtcaaaggggagaagaagatgataaagtcttccctggtgg
                                                                                                                                                                                                                                                                                                                                                           TTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGC
                                                                                                                                                                                                                                                                                                                                                                        ttcccatcctgtcagtcttcatgctgtttggtgtatcctactggaaagcttctgagggagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Voorberg, J.J.

Hybrid proteins with modified activity
Patent: US 6130203-A 1 10-OCT-2000;
Location/Qualifiers
1. .5035
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Ammmalia; Butheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 8831)
Danieru, J.K., Richiyaado, M.R., Goodon, A.B. and Uiriamu, A.U. . MANUFACTURE OF FUNCTIONAL VIII FACTOR
                                                      Homo sapiens.
                                                                             E00527.1 GI:21688
JP 1985243023-A/2.
                                                                                                            E00527 8831 bp
Complete cDNA encoding
                                                                                                   E00527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="unknown"
1 1127 c 1110 g
                                                                                        GI:2168806
                                                                                                                                                                                619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59.2%;
97.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 592.2; DB 6;
Pred. No. 8.9e-155;
0; Mismatches 13;
                                                                                                              human
                                                                                                               factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5035;
                                                                                                                         29-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     447
                                                                                                                                                                                                                                                                                                                                         867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                  987
                                                                                                                                                                                                                                                                                                                                                               426
                                                                                                                                                                                                                                                                                                                                                                                  807
                                                                                                                                                                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                            606
                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
δÃ
                                                                                           В
                                                                                                                                       Qy
                                                                                                                                                                                            Db
                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 59.1%;
Best Local Similarity 96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
792 aagcttctgagggagctgaatatgatgatcagaccagtcaaagggaggaagaagatgata
                                                                                           426
                                                                                                                                                                                                 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   552
                                                                                                                                                                                                                                                                                                          306
                                                                                                                                                                                                                                                                                                                                                            612
                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             492 tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66
                                                                                CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                                                                         cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                     acgcaagatttcctcctagagtgccaaaatcttttccattcaacaccttcagtcgtgtaca 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccacctgcttctttctgtgccttttgcgattctgcttttagtgccaccagaagatactacc 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        605;
                                                                                                                                                                                                                                                                                                                                                                                                           ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERNTECH INC
OS Homo sapi
PN JP 198524
PN JP 198524
PN JP 198524
PN JP 20-APR-19
PF 19-APR-19
PR 20-APR-19
PR 19-APR-19

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UIRIAMÜ AAUIN UTSUDO A61K37/04,A61K35/12,A61K35/74,C07H21/04,C07K13/00,C07K15/04,C12M5/00,C12M5/00,C12M1:91);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polyA_signal
polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             topology: Linear;
hypothetical: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C12N15/00//C12P21/00,(C12N5/00,C12R1:91);
strandedness: Single;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DANIERU JIEFURII KEIPON, RICHIYAADO MAAKU ROON, PI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-APR-1985 JP 1985085295
20-APR-1984 US 84 6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JP 1985243023-A/2 03-DEC-1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       anti-sense: No;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *source: chromosome/segment=X-chromosome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JP 1985243023-A 2 03-DEC-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
1865 c 1800 g 2359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .8831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cell_line=CH-2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110. .7265
/product='factor VIII'
7266. .48967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8948. .8953
8968.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product='factor VIII'
110. .7265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 590.6; DB 6; Length 8831;
Pred. No. 2.5e-154;
0; Mismatches 24; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product='factor VIII signal peptide'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2359 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GOODON
                                                                                     485
                                                                                                                                          791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŦΤ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
AX052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       666 ACTTGAATTCAGGCCTCATTGGAGCCCTA 694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag 971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aagtetteeetggtggaageeatacatatgtetggeaggteetgaaagagaatggteeaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Methods of reducing factor viii clearance and compositions therefor Patent: WO 0071714-A 1 30-NOV-2000; The American National Red Cross (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Primates; Catarrhini; Hominidae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1 from Patent W00071714. Ax052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saenko, E.L. and Strickland, D.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AX052730.1 GI:12226920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AX052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 8967)
                                                                                                                                                                                                                                                                                    QHDGMARYYKVDSCPEEPQLKKKNNEEBEDYDDDLTDSGMDVVREDDNSPST101RS
VAKKHPKTWHY IAAEEEDWDYAPLVLAPDDRSYKSOYLNGPORIGRKYKKVREMAY
TDETFKTREAIQHESGILGPLLYGEVGDTLLIIFKNQASRPYNIYPHGITDVRPLYSR
RLPKGYKHLKOPPILDGEIFKKKWTVTYEDGPFKSDPRCLTRYYSSFVNMERDLASGL
IGPLLICYKESVDQRGNQIMSDKRNVILFSVFDENRSWYLTENIQRFLPNPAGYQLED
PEFQASNIMHSINGYVFDSLQLSVCLHEVAYWYILSIGAQTDPLSVFFSGYTFKHKMV
YEDTLILFPFSGEIVFMSMENFGLWILGCHNSDFRNRGMTALLKVSSCDKNTGDYYED
SYEDISAYLLSKNNALEPRSFSQNSHRRSTROKOFNATTIPENDIEKTDPWFAHRTPM
PKIQNVSSSDLLMLKROSPTPHGLSLSDLQLAKVETFSDDPSPGAIDSNNLLSTIPSUNLA
AGTDNTSSLGPSMPWHYDSQLDTTLFGKKSSPLTESGGPLSLSEENNUSKLLESGLM
NSQESSMGKNVSSTESGRLFKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKRAHGPALLTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKRAHGPALTTKDNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLLENSSTESGRLFKGKFTHDFGKKSSPLTSGRAFKKHKHKLFLLSTRONVEGSYDGA
VAPPULODFRSLNDSTNRTKHITAHFSKKGEEENLEGLGNGTKGIVEKXACTTRISPNT
SSKNNEMYOGKKEGPIPADAONPDASFFKMLFLBSGARWORGSTRNLFLTNLDNLHEN
NTHNOEKKIDEEIEKKETLIOENVYLGGIFTNDYGGIKNMKNLFLLSTRONVEGSYDGA
YAPPULODFRSLNDSTNRTKHITAHFSKKGEEENLEGLGNGTKGIVEKXACTTRISPNT
                                                                                                                                                              SQQNFVTQRSKRALKQFRLPLEETELEKRIIVDDTSTQWSKNMKHLTPSTLTQIDYNE
KEKGAATQSPLSDCLTRSHSITQANKSPLPIAKVSFPSIRPIXTRVLFQDNSSHLP
AASYRKKDSGVQESSHFLQGAKKNLKSLAILTLEMTCDQFEVGSLGTSATNUSYTYKV
ENTVLPKPDLPKTSGKVELLPKVHIYQKDLFPTETSNGSPGHLDLVEGSLLQGTEGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="taxon:9606"
110. 166
EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFWKVQHHM
                                                                                              KWNEANRPGKVPFLRVATESSAKTPSKLLDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
FKKKDTILSLNACESNHAIAAINEGQNKPEIEVTWAKQGRTERLCSQNPPVLKRHQRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MQIELSTCFFLCLLRFCFSATRRYYLGAVELSWDYMQSDLGELP
VDAREPRVPKSFPRNTSVVVKKTLFVEFTDHLFUIAKPRPMMGLLGPTIQAEVYDT
VVTTLKNMASHPVSLHAVGVSYWKASEGAEYDDTSQREKEDDKVFPGGSHTYVMQVL
KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                   ITRTTLQSDQEEIDYDDTISVEMKKEDFDIYDEDENQSPRSFQKKTRHYFIAAVERLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AVFDEGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IGMGTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFLLFCHISSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="CAC21811.1"
/db_xref="GI:12226921"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="unnamed protein product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8967 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    911
```

NSCSMPLGMESKAISDAQITASSYFTNMFATWSDSKARLHLQGRSNAWRPQVNNPKEW LQVDFQKTMKVTGVTTQGVKSLLTSMYVKEFLISSSQDGHQWTLFFQNGKVKVFQGNQ DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY" 167 7162 APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
IFDEFTKSWYFTENMERNCRAPCNIQMEDPTFKENYRRHAINGY IMDTLPGLVMAQDQR
IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEYKMALYNLYBGVFETVEMLPSKAGIWR
VECLIGEHLHAGMSTLELVYSNKCQTFDGMASGHIRDEQITASGQYGGMAPKLARLHY
SGSINAWSTKEPFSWIKVDLLAPMIIHGIKTGGARQKFSSLYISQFIIMYSLDGKKWQ
TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL

BASE CO mat_peptide COUNT 2 1898 a 1833 g 2395

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    οy
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                            ACCESSION
VERSION
                                                                   RESULT
171409
                                                                                                         B 8
                                                                                                                                              밁
                                                                                                                                                               QΥ
                                                                                                                                                                                    뫄
                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                 B
                                                        LOCUS
                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432
                                                                                                                                                                                                                                                                                                                                                                   612
                                                                                                                                                                                                                                                                                                                                                                                       246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                         666
                                                                                                                                                                  912
                                                                                                                                                                                     546
                                                                                                                                                                                                                            486
                                                                                                                                                                                                                                               792
                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                         366
                                                                                                                                                                                                                                                                                                                                               306
                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                     CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                        acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                       cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                              ccacctgcttctttctgtgcctttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                               aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaaatggtccaa
                                                                                                                                                                                                                                      tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                        tggcctctgacccactgtgccttacctactcatatcttctcatgtggacctggtaaaag
                                                                                                                                                                                    AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                            CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                               TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 605;
                            Sequence
171409
171409.1
          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                        I71409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                               1 from patent
                             GI:3007544
                                                         8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 590.6; DB 6; Pred. No. 2.5e-154; 0; Mismatches 24;
                                                 S
                                                 5681746
                                                                                                                             1000
                                                                                                           694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   185
                                                                                                                                                                                                                                                                    485
                                                                                                                                                                                                                                                                                                          425
                                                                                                                                                                                                                                                                                                                                                  365
                                                                                                                                                                                                                                                                                                                                                                    671
                                                                                                                                                                                                                                                                                                                                                                                       305
                                                                                                                                                                                                                                                                                                                                                                                                          611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        491
                                                                                                                                                                                      605
                                                                                                                                                                                                                             545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
```

Unknown

Unclassified

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ωy
             REFERENCE
AUTHORS
                                                                                                               DEFINITION ACCESSION
                                                                                                                                                     RESULT 1
                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432 ccacctgcttctttctgtgcctttttgcgattcttgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct
                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                            546
                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    306 AAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 125
                                                                                                                                                                                                                    acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                     tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                      aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaaatggtccaa
                                                                                                                                                                                                                                                                                                                                                              TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                          TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                                                                          AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                        ACTTGAATTCAGGCCTCATTGGAGCCCTA
Homo sapiens Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; I Eukaryota; Metazoa; Chordata; Catarrhini; Hominidae; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 8967) Mood,W.I., Capon,D.J., Simonsen,C.C., Eaton,D.L., Gi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 8967)
Bodner,M., De Polo,N.J., Chang,S., Hsu,D.Chi-Tang and Respess,J.G. Retroviral delivery of full length factor VIII
Patent: US 5681746-A 1 28-OCT-1997;
                                                                                                                             Human mRNA for
                                                                                        factor VIII;
                                                                                                   X01179.1 GI:31498
                                                                                                                                          HSFVIIIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="unknown"
1898 c 1833 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59.1%;
96.2%;
                                                                                       signal peptide
                                                                                                                                         8967
                                                                                                                              factor
                                                                                                                                         đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 590.6; DB 6;
Pred. No. 2.5e-154;
0; Mismatches 24;
                                                                                                                               VIII.
                                                                                                                                                                                                           694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6;
                                                                                                                                            PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                 Gitschier,J.
                                                     Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       491
                                                                                                                                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                           665
                                                                                                                                                                                                                                                                                     971
                                                                                                                                                                                                                                                                                                              605
                                                                                                                                                                                                                                                                                                                                       911
                                                                                                                                                                                                                                                                                                                                                                                        851
                                                                                                                                                                                                                                                                                                                                                                                                                                            791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
MEDLINE
                                                                                                                                   polyA_site
                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                           mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Keyt, B., Seeburg, P.H., Smith, D.H., Hollingshead, P., Wion, K.L., Delwart, E., Tuddenham, E.G.D., Vehar, G.A. and Lawn, R.M. Expression of active human factor VIII from recombinant DNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nature 312 (5992), 330-337 (1984)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       kindly reviewed (20-MAR-1986) by W. Wood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IGMGTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFLLFCHISSH
QHDGKEAYVKVDSCPEEPQLRMKNNEEAEDYDDDLTDSEMDVRRDDDNSPSFIQRS
VAKKHPKTWHY IAAEEEDMDY APLVLAPDDRSY KSQYLNNGPQRIGRKYKKVRFMAY
TDETFKTWHY IAAEEEDMDY APLVLAPDDRSY KSQYLNNGPQRIGRKYKKVRFMAY
TDETFKTREATOHESGIIGPLLYGEVGDTLLIIFKNQASRPYNIY PHGITDVRPLYSR
RLPKGVKHLKOFPILPGEIFKYKWTYFVEDGPTRSDPRCHTRYYSSFVNNEEDLASGL
IGPLLICYKESVDQRGNQIMSDKRNVILFSVDFDRSWYLTENIQRFLPNPAGVQLED
PEFQASNIMHSINGYVEDSLQLSVCLHEVAYWYILSIGAQTDFLSVFESQTFKHKMV
YEDTLTLFFESGETVFMSMENGGLWILGCHNSDFRNRGHTIPENDIEKTDFWFAHRTPM
PKIQNVSSSDLLMLLRGSFSNNSHRSTTQXOFMATTIPENDIEKTDFWFAHRTPM
PKIQNVSSSDLLMLLRGSFTPHGLSLSGLXGHLGENAVSTSNNLLSTIPSDNLA
AGTDNTSSSDLLMLLRGSFTPHGLSLSGLXFLXGENGTLSLEENNDSKLLESGIM
NSQESSWKNVSSTESGRLFKGKARHGPALLTKNDALFKVSISLLKTNTGSNNSATNR
KTHIDGPSLLIENSPSWQNILESDTEFKKVTPLIHDRMLMDKNATARR
KTHIDGPSLLIENSPSWQNILESDTEFKKVTPLIHDRMLMDKNATARR
KTHIDGPSLLIENSPSWQNILESDTEFKKVTPLIHDRMLMDKNATALRLNHMSNKTT
SSKNMEMVQOKKEGPIPDAQNPDMSFFKMLEFLPESARMJORTHGKNSLNSGQGPSPK
SKNMEMVQOKKEGPIPDAQNPDMSFFKMLEFLPESARMJORTHGKNSLNSGQGPSPK
SKNMEMVQOKKEGPIPDAQNPDMSFFKMLEFLPESARMJORTHGKNSLNSGQGPSPK
NOLVSLGPEKVYEGNUTISEKWYVVYKKGFFTKNYGLKFMVPDSSGULFTTNUTHTNUTHNUTHH
                                                                                                                                        /note="polyadenylation signal"
8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QLVSLGPEKŠVEGONFLSEKNKVVVGKGEFTKDVGLKEMVFPSSRNLFLTINLDNLHEN
MTHNQEKKIQELEKKETLIQENVVLRQIHTVTGTKKMYKNLFLISTRQNVEGSYDGA
YAPVLQDEFSLMDSTNKTKHTAHESKKGEEBENLEGLGNQTKQIVEKYGCTTRISPNT
SQONFVTQRSKRALKQFRLPLEETELEKRIIVDDTSTQWSKNNKHLTPSTLTQIDYNE
KEKGALTQSPLSDCLTRSHSIPQANKSPLPIARVSFPSIRFYLTRYLFQNMSSHLP
AASYRKKDSGVQESSHFLOGAKKNULSLAILTLEMTGDQFEVGSLGTSATNSVTYKK
ENTVLPKPDLPKTSGKVELLPKVHIYQKDLFPTETSNOSPGHLDLVEGSLLQGTEGAI
KWNEANRPGKVPFLRVATESSAKTPSKLLDPLAWDHYGTQIPKEEDWKSQEKSPEKTA
FKKKDTILSLNACESNHAIAAINEGQNKPEIDFVMAKOGFTERLCSQNPPVLKRHQRE
ITRTTLQSDQEEIDYDDTISVEMKKEDFDIYDEDENQSPRSFOKKTRHYFIAAVERLM
DYGMSSSPHVLENRAGSGSVPOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFKKVFQETTDGSFTQDSFTSRCLNEHGLEDFYIRA
EVFDNIMMTERDAGAGSVFOFFTSRCLNEHGLENDHIGHT
                                          /note="polyA site"
1898 c 1833 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VECLIGEHLHAGMSTLFLVYSNKCQTPLGMASGHIRDFQITASGQYGQWAPKLARLHY
SGSINAWSTKEPFSWIKVDLLAPMIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ
TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IFDETKSWYFTENMERNCRAPCNIQMEDPTFKENYRFHAINGYIMDTLPGLVMAQDQR
IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEYKMALYNLYPGVFETVEMLPSKAGIWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFWKVQHHM
APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MOIELSTOFFLOLLRECFSATRRYYLGAVELSWDYMOSDLGELP
VDARFPPRVPKSFPENTSVVYKKTLFVEFTDHLENIAR RPRPWMGLLGFTIOAEVYDT
VVITLKNMASHPVSLHAVGVSYMKASEGAEYDDOTSOREKEDDKVFPGGSSHTYVWOVL
KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
<1...109
                                                                                                                                                                                                                                                                                                                           /product="mature
7163. .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NSCSMPLGMESKAISDAQITASSYFTNMFATWSPSKARLHLQGRSNAWRPQVNNPKEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AVFDEGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="signal peptide (aa -19
110. .7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="5' untranslated region"
110. .166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="SWISS-PROT:P00451"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="CAA25619.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="factor VIII precursor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                       untranslated region"
                                          g
                                                                                                                                                                                                                                                                                                                                                                 factor VIII (aa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ţ
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                    RESULT 12
HUMFVIIIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
 REFERENCE
                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                 γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γQ
                                                                                                                                                                                                                                                                                                                                         LOCUS
              JOURNAL
MEDLINE
                                                                             TITLE
                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   546 AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCACCTGCTTCTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         605;
DNA 4 (5),
86081164
2 (sites)
                                                                                       Truett,M.A., Blacher,R.W., Burke,R.L., Caput,D., Chu,C., Dina,D., Hartog,K., Kuo,C.H., Maslarz,F.R., Merryweather,J.P., Najarian,R., Pachl,C., Potter,S.J., Puma,J., Quiroga,M., Rall,L.B., Randolph,A., Urdea,M.S., Valenzuela,P., Dahl,H.-H.M., Favalaro,J., Hansen,J., Choffeng,O. and Ezban,M.
                                                           Characterization of the polypeptide composition of human factor VIII:C and the nucleotide sequence and expression of the human
                                                                                                                                                                                                                                     coagulation factor VIII:C. Human kidney, cDNA to mRNA, GM1416 DNA, clone pF8-4.3.
                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                       M14113
M14113.1 GI:182817
                                              kidney cDNA
                                                                                                                                                                       (bases 1 to 9029)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                        coagulation
                               333-349 (1985)
                                                                                                                                                                                                                                                                                                                                     9029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59.1%;
                                                                                                                                                                                                                                                                                                         bp mRNA
factor VIII:C mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 590.6; DI
Pred. No. 2.5e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                      clones pF8[100,102]; and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                       08-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8967;
                                                                                                                                                                                                                                                         cell line
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          [3] sites; mutation causing hemophilia.
[2] sites; mutations causing hemophilia.
Draft entry and clean copy sequence for [1] kindly provided by M.A.Truett, 26-FEB-1986.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Moderately severe hemophilia A resulting from Glu----Gly substitution in exon 7 of the factor VIII gene Am. J. Hum. Genet. 42 (6), 867-871 (1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Youssoufian, H., Wong, C., Aronis, S., Platokoukis, H., Kazazian, H.H. Jr. and Antonarakis, S.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88197150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DeRosa, V. and Marchetti, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bernardi,F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HindIII RFLP and a gene lesion in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mutation at position 1042 results in a change of Glu to the one at position 1043 in a change from Glu to Gly. Tation at position 1042 produces a premature stop codon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genet. 78 (4), 359-362 (1988)
                                                                                                                                                                                                                                                                       PKIQNVSSSDLLMLLRQSPTPHGLSLSDLQEAKYETFSDDPSPGAIDSNNSLSEMTHF
RPQLHHSGDMYFTPESGLQLRLNEKLGTTAATELKKLDEKVSSTENNLLISTIPSDNLA
AGTDNTSSLGPPSMPVHYDSQLDTTLFGKKSSPLTESGGPLSLSEENNDSKLLESGLM
NSQESSWGKNVSSTESGRLFKGKRAHGPALLTKNNALFKVSISLLKTNKTSNNSATNR
KTHIDGPSLLIENSPSVWQNILESDTEFKKVTPLIHDRWLMDKNATALRLNHMSNRTT
SSKNNEMVQQKKEGPIPDDAQNPDMSFFRMLFLFESDAWLAGTHGKNSLNSGQFPSPK
QLVSLGPEKSVEGQNFLSEKNKVVVGKGEFTKDVGLKEWYPPSSRMLFLTNLDHLHEN
NTHNQEKKJGEEIEKKETLIQENVYLPQIHTVTGTKNFMKNLFLLSTRQNVEGSYDGA
YAPVLQDFRSLMDSTNRFTKHTAHFSKKGEEENLEGLGNOTKGJTVEKAGTTRISPNT
SQQNEVTQRSKRALKQFRLPLEETELEKRIIVDDIXKSVSFPSIRPIYLTRVLFQDNSSHLP
KEKGALTQSPLSDCLTRSHSIFQANRSPLDFIAKVSSFPSIRPIYLTRVLFQNNSSHLP
AASYRKDSGVQESSHFLQGAKKNLSLAILTLEMTGDDREVGSLGTSATNSVTYKV
AASYRKKDSGVQESSHFLQGAKKNLSLAILTLEMTGDDREVGSLGTSATNSVTYKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TDETFKTREAIQHESGILGPLLYGEVGDTLLIIFKNQASRPYNIYPHGITDVRPLYSR
RLPKGYKHLKOPPILPGEIFKYKWTVTYEDGPTKSDPRCLTRYSSFVINNERDLASGL
IGPLLICYKESVDQRGNQIMSDKRNVILFSVEDENRSWYLTENIQFELPNPAGVCLE
PEFQASNIMHSINGYVFDSLQLSVCLHEVAYWYILSIGAQTDFLSVFFSGYTFKHKMU
YEDTLTLFPFSGETVFMSMENFGLWILGCHNSDFRNRGMTALLKVSSCDKNTGDYYED
SYEDISAYLLSKNNAIEPRSFSQNSRHPSTRQKQFNATTIPENDIEKTDPWFAHRTPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QHDGMEAYYKYDSCPEEPQLRMKNNEEAEDYDDDLTDSEMDYVRFDDDNSPSFIQIRS
VAKKHPKTWVHYIAAEEEDWDYAPLVLAPDDRSYKSQYLNNGPQRIGRKYKKVRFMAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MQIELSTCFFLCLLRFCFSATRRYYLGAVELSWDYMOSDLGELPVDTAKENDAYPOSDLGELPVDTLKNMASHPVSLHAVGYSYMASBGAEVDDTSOBEKEDDKVFPGGSGAFTYWOVLKTLFVESTDHLFILAK RRPPWHOLLGFTQAEVYDTVYTLKNMASHPVSLHAVGYSYMASBGAEVDDTSOBEKEDDKVFPGGSGAFTYWOVLKDLKKNASHPVSLHAVGYLKKELSTLHKFILLFKENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLFKENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLFKENGPMASDPLCLTYSYLSHVDLNKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/db_xref="GDB:GOO-119-124"
/protein_id="AAA52485.1"
/db_xref="GI:182818"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene='
EVEDNIMYTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFWKVQHHM
APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
                                                                                DYGMSSSPHVLRNRAQSGSVPQFKKVVFQEFTDGSFTQPLYRGELNEHLGLLGPYIR
                                                                                                                                                                 FKKKDT ILSLNACESNHA IAA I NEGQNKPE I EVTWAKQGRTERLCSQNPPVLKRHQRE
                                                                                                                                                                                                   KWNEANRPGKVPFLRVATESSAKTPSKLLDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
                                                                                                                                                                                                                                                  ENTVLPKPDLPKTSGKVELLPKVHIYQKDLFPTETSNGSPGHLDLVEGSLLQGTEGAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IGMGTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFLLFCHISSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVFDEGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="preprocoagulation factor VIII:C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                  ITRTTLQSDQEEIDYDDTISVEMKKEDFDIYDEDENQSPRSFQKKTRHYFIAAVERLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /map="xq28"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="coagulation factor VIII:C signal peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="F-VIII mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Legnani, C., Volinia, S., Patracchini, P., Rodorigo, G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the coagulation factor VIII
```

```
Qy
                                                                                                                                Вþ
                                                                                                                                                              δÃ
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
Вþ
                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          248
                                                                                                                                                                                                                                                                                                                                       428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
728
                               972 acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                      488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                       cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                                                                                                                                          aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACCTGCTTCTTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc 491
ACTTGAATTCAGGCCTCATTGGAGCCCTA
                                                                  TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                    tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                    AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                     aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                   cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                     CCTGGATGGGTCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                                                                                                                                                                                                                                      AAAAGACTCTGTTTGTAGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTIAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="c in wt; t i
0 a 1910 c 1848 g
upstrem of SacI site.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL
NSCSMPLGMESKAISDAQITASSYFTNMFATWSPSKARLHLQGRSNAWRPQVNNPKEW
LQVDFQKTMKVTGVTTQGVKSLLTSMYVKEFLISSSQDGHQWTLFFQNGKVKVFQGNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGSINAWSTKEPFSWIKVDLLAPMIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VECLIGEHLHAGMSTLFLVYSNKCQTPLGMASGHIRDFQITASGQYGQWAPKLARLHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEYKMALYNLYPGVFETVEMLPSKAGIWR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="a in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="F8C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="g in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="coagulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₩t;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    wt;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 590.6;
Pred. No. 2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in hemophiliac [3]"
g 2411 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in hemophiliac [2]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in hemophiliac [2]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor VIII:C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.5e-154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 9029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                      971
                                                                                                                                       667
                                                                                                                                                                       911
                                                                                                                                                                                                        607
                                                                                                                                                                                                                                          851
                                                                                                                                                                                                                                                                         547
                                                                                                                                                                                                                                                                                                         791
                                                                                                                                                                                                                                                                                                                                          487
                                                                                                                                                                                                                                                                                                                                                                                                            427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247
```

0;

Gaps

0

166

491

```
RESULT 1
                                                                       밁
                                                                                         Qy
                                                                                                                 밁
                                                                                                                                 20
                                                                                                                                                              밁
                                                                                                                                                                              δÃ
                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
ORGANISM
                 LOCUS
                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
ACCESSION
VERSION
     DEFINITION
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 604; Conserv
                                                                                            972
                                                                                                                  647
                                                                                                                                       912
                                                                                                                                                              587
                                                                       707
                                                                                                                                                                                    852
                                                                                                                                                                                                          527
                                                                                                                                                                                                                              792
                                                                                                                                                                                                                                                     467
                                                                                                                                                                                                                                                                          732
                                                                                                                                                                                                                                                                                                407
                                                                                                                                                                                                                                                                                                                    672
                                                                                                                                                                                                                                                                                                                                          347
                                                                                                                                                                                                                                                                                                                                                               612
                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                          552
                                                                                                                                                                                                                                                                                                                                                                                                                                                      492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                     acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                           cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                       tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                       aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                  actgacatccacttttttttttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                  CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                                                                                                                                              cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                         tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc 491
                                                                                                                                                             AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                      TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACCTGCTTCTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
    AR029065
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AR003710
Sequence
AR003710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               l (bases 1 to 9009)
LOllar, J.S. and Runge, M.S.
Hybrid human/animal factor VIII
Patent: US 5744446-A 1 28-APR-1998;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AR003710.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
     1 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="unknown"
1907 c 1844 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:3964969
               9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58.9%;
96.0%;
    patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        patent
               þþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
DNA
US T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 589; DB 6; Length Pred. No. 7.1e-154; O; Mismatches 25; Indel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SD
     5859204.
                                                                                           1000
               PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                29-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                      971
                                                                                                                                                                                                                                                                                                                  731
                                                                                                                                                            646
                                                                                                                                                                                  911
                                                                                                                                                                                                        586
                                                                                                                                                                                                                                                                                             466
                                                                                                                                                                                                                                                                                                                                                                                   346
                                                                                                                                                                                                                                                                                                                                                                                                                              286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
   LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
                                                         RESULT :
                                                                                                                        Qy
                                                                                                                                                                    Qγ
                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                     뫄
                                                                                                                                                DЪ
                                                                                                                                                                                           В
                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                       ΔÃ
                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                       рЬ
                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                     707
                                                                                                               972 acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                  647
                                                                                                                                                                      912
                                                                                                                                                                                            587
                                                                                                                                                                                                                                                                                  467
                                                                                                                                                                                                                                                                                                                            407
                                                                                                                                                                                                                                                                                                                                                 672
                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                432
                                                                                                                                                                                                                                                             792
                                                                                                                                                                                                                                                                                                                                                                                                                    287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167
                                                                                                                                                                                                                                                                               ACTTGAATTCAGGCCTCATTGGAGCCCTA
                                                                                                                                                           tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                        aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                 acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                            AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                                                                                                                                                                                 aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                       AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCACCTGCTTCTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                  ACGCAAGATTTCCTCCTAGAGTGCCAAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                       AR126884
Sequence
AR126884
             AR126884.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Modified factor VIII Patent: US 5859204-A 1 12-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lollar, J.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AR029065.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AR029065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ы
                                 \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="unknown"
1907 c 1844 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
1. .9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 to
                                 from patent US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:5941038
                                               9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 589; DB 6;
Pred. No. 7.1e-154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                   6180371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

706 971 646 911 526

791

586

466

731

406

671

611

551

226

286

```
멍
            δõ
                                 В
                                             Qγ
                                                                  밁
                                                                              Qy
                                                                                               망
                                                                                                                  QΥ
                                                                                                                                     В
                                                                                                                                                  ΩV
                                                                                                                                                                       밁
                                                                                                                                                                                     δÃ
                                                                                                                                                                                                       뫄
                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                           ρy
                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                             707
                                  647
                                                  912
                                                                   587
                                                                                    852
                                                                                                    527
                                                                                                                    792
                                                                                                                                     467
                                                                                                                                                      732
                                                                                                                                                                       407
                                                                                                                                                                                        672
                                                                                                                                                                                                        347
                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                          287
                                                                                                                                                                                                                                                           552
                                                                                                                                                                                                                                                                           227
                                                                                                                                                                                                                                                                                           492
                                                                                                                                                                                                                                                                                                            167
                                                                                                                                                                                                                                                                                                                            432
                                                                                                                                                                                                                                                                                                                                                                             y Match 58.9%;
Local Similarity 96.0%;
hes 604; Conservative
acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca 611
                                                                                                                                                                                                                                                                                   tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                          tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag 971
                                                                           aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa 911
                                                                                                                                                                                                                                          ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                            TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                  TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                    AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 9009)
Lollar, J.S.
Modified factor VIII
Patent: US 6180371-A 1 30-JAN-2001;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                 2853 a
                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="unknown"
1907 c 1844 g
                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                1844 g
                                                                                                                                                                                                                                                                                                                                                                             Score 589; DB 6; 1
Pred. No. 7.1e-154;
0; Mismatches 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                  2405
                                                                                                                                                                                                                                                                                                                                                                                             Length 9009;
                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                          346
                                                                                                                                                                                                                                                                            286
                                                                                                                                                                                                                                                                                                                                                                               0;
```

Search completed: January 17, Job time: 13907 sec

2002,

16:26:26

•			
•			
•			
•			
			•
		•	
	•		

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-740-211-14_COPY_1_1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             January 17, 2002, 16:33:41; Search time 343.96 Seconds
SIDS2/gcgdata/geneseq/geneseqn/Na1980.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1981.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1981.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1982.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1983.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1985.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1985.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1985.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1987.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1989.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1990.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1990.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1992.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1993.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1993.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1995.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1996.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1997.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1999.DAT:

/SIDS2/gcgdata/geneseq/geneseqn/Na1999.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            930621 segs, 428662619 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cgcccctgcaggcagctgcg.....caggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (without alignments)
2492.514 Million cell updates/sec
```

pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
•

Result

NO.

	as .			SUMMARIES	
Score	Query Match	Query Match Length DB	BIG	ID	Description
1000	100.0		21	AAD00122	Recombinant adenc
1000	100.0		22	AAD08613	Human factor VII:
736.2	73.6		21	AAD00121	Recombinant adence
736.2	73.6		22	AAD08612	Human
640	64.0		22	AAF84647	Plasmi
593.2	59.3		21	AAA49232	Vector HSQReNeo fo
592.2	59.2		18	AAT69811	Factor VIII-dB695-
590.6	59.1		19	AAV19581	Human
590.6	59.1		19	AAV15338	Human
590.6	59.1	8967	17	AAT31031	Facto
590.6	59.1		22	AAC87526	Human

110 110 110

.4 49.5	21.8 52.2	524.8 52.5	528 52.8	528 52.8	528 52.8	528 52.8	565.8 56.6	566.6 56.7	579.2 57.9	580.2 58.0	581.8 58.2	583.4 58.3	583.4 58.3	583.4 58.3	584.2 58.4	585 58.5	585.8 58.6	586 58.6	586 58.6	586 58.6	587.2 58.7	587.2 58.7	587.2 58.7	589 58.9	589 58.9	589 58.9	589 58.9	589 58.9	.6 59.1	590.6 59.1	590.6 59.1	590.6 59.1	0,0.0
										4629 16						7053 18						11846 20							9080 19				
) AAV12112		AAN80444) AAN90654	×			D						Þ				×														AAZ38604	
Plasmid DLZ7 encod		Human Factor-VIII	Modified factor VI		Modified factor VI	factor	₽	DNA sequence encod	cDNA encoding numa	B-domain deleted F	Human Factor VIII	Sequence of numan	DNA construct HSQ/	Human Factor VIII-	Sequence encoding	Factor VIII:C codi	Homo sapiens lacto		Factor VIII CDNA 1	CDNA				-	Human factor VIII		\sim	actor V	ractor	Factor VIII	ractor	rull-lengt	

ALIGNMENTS

AAD00122

Н

AAD00122 standard; DNA; 4999 BP.

AAD00122;

```
20-OCT-1998;
24-MAR-1999;
30-JUL-1999;
                                                                                                                                                                                                                    Recombinant Adeno Associated Vector; rAAV; pVm4.1cF8deltaB; promoter; human Factor VIII; hFVIII; EF1alpha; human elongation factor-lalpha; human growth hormone; hGH; ITR; inverted terminal repeat; haemophilia; gene therapy; ds.
                                                                                                                                                                                                                                                                          Recombinant adeno associated vector construct, pVm4.1cF8deltaB.
                                                                                                                                                                                                                                                                                                  31-JUL-2000 (first entry)
                                                                                                                                                    27-APR-2000.
                                                                                                                                                                             WO200023116-A1.
                                                                                                                                                                                               Adeno associated virus.
New recombinant adenovirus-associated vector, useful for gene therapy
                      WPI; 2000-339536/29.
                                         Couto LB, Colosi PC;
                                                               (AVIG-) AVIGEN INC.
                                                                                                                                19-OCT-1999;
                                                                                    98US-0104994.
99US-0125974.
99US-0364862.
                                                                                                                                  99WO-US24495
```

```
C(rAAV) construct pund 1.0F8deltaB. This expression vector comprises the CPHAlpha) gene, human Factor VIII coding sequence (hFVIII) and a C(FIAlpha) gene, human Factor VIII coding sequence (hFVIII) and a C(FIAlpha) gene, human Factor VIII coding sequence (hFVIII) and a C(FIAlpha) gene, human factor VIII coding sequence (hFVIII) and a C(FIAlpha) gene the AAV inverted terminal repeat (ITR) regions. The C(FIALPHA) gene the AAV inverted terminal repeat (ITR) regions. The C(FIALPHA) gene segment with the AAV inverted terminal peptide, Al and A2 domains C(FIALPHA) gene segment comprises the C-terminal B5 amino acids of B domain and the A3, C(FIALPHA) generated by 42 nucleotides coding for 14 residues of the B domain, that is deleted. This plasmid is operably linked to C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the C(FIALPHA) generated by 42 nucleotides coding for 14 residues control sequences, that directs the transcription and translation of the factor VIII generated by 42 nucleotides coding for 14 residue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 1000
601
                                                           541
                                                                                                                                                                                     481
                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present DNA sequence is a recombinant adenovirus-associated vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Sir
hes 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     expression
                                                 gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                               gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                                                                                                                        aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                         aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                  aatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgccaccag
                                                                                                                                                                                                                                                                                                                                   aatagagctctccacctgcttctttctgtgcctttttgcgattctgcttttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                                               catctactgacatgacatccactttttctttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          catctactgacactgacatccactttttcttttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtgcagtagtcgccgtgaacgttcttttcgcaacgggtttgccgccccgcggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtgcagtagtcgccgtgaacgttcttttcgcaacgggtttgccgccccgcgggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaagtgatgtcgtgtactggctccgcctttttcccgagggtggggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cgcccctgcaggcagctgcgctcgctcgctcactgaggccgcccgggcaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cgcccttgcaggcagctgcgctcgctcgctcactgaggccgcccgggcaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaagtgatgtcgtgtactggctccgcctttttcccgagggtggggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; ilarity 100.0%; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP; 1375 A; 1151 C; 1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in the infected hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1000;
Pred. No. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.6e-280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1318 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                 600
                                                                                                            600
                                                                                                                                                                           540
                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

Qy

Ωy В δÃ DЬ Qy B Qy В Qy Ъ QΥ В δÃ В Qy B δÃ В Q В

agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa

The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a second recombinant adeno-associated virion comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is

Claim 19; Fig 6; coagulation

90pp;

English.

administering recombinant adeno-associated vectors which

factor VIII

useful in gene therapy

for

treating haemophilia A in

```
Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вр
                                                                                                                                      Treating blood clotting disorder,
                                                                                                                                                                                                              (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                          21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                         WO200145510-A1
                                                                                                                                                                                                                                                                                                                                 Chimeric
                                                                                                                                                                                                                                                                                                                                            Chimeric
                                                                                                                                                                                                                                                                                                                                                     Chimeric -
                                                                                                                                                                                                                                                                                                                                                                             pVm4.lcF8-B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAD08613 standard; DNA; 4999
                                                                                                                                                                                                                                                                                  28-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                      Recombinant adeno-associated viral vector; rAAV; blood clotting disorder; gene therapy; haemophili
                                                                                                                                                                                                                                                                                                                                                                                                                      Human factor VIII expressing rAAV vector pVm4.1cF8-B partial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                04-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961 cctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601 agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
                                                                                                                                                              2001-417955/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cctggtaaaagacttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                       LB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Colosi PC,
                                                                                                                                                                                                                                                                                                                                                     Adeno associated
                                                                                                                                                                                                                                                                                                                               Unidentified
                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                             ds.
                                                                                                                                                                                                                                     99US-0470618
                                                                                                                                                                                       Qian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                                          especially hemophilia in mammals, ssociated vectors which express bl
                                                                                                                                                                                                                                                                                                                                                                                      haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                 factor VIII;
                                                                                                                          blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
```

0;

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                    ΩV
                                                                                                                                                                                                                                                                                                                    밁
밁
                          ΔÃ
                                                              밁
                                                                                          δÃ
                                                                                                                          멍
                                                                                                                                                      δÃ
                                                                                                                                                                                          В
                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. The present sequence is pVM4.1cF8-B vector without the plasmid backbone. It comprises human elongation factor I (EF1) promoter, B-domain deleted human factor VIII coding sequence, a poly A signal and AAV inverted terminal repeats (ITRs) at the ends. The vector encodes both the light and heavy chains of human factor VIII separated by 14 amino acids of the B domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4999 BP; 1375 A; 1151 C; 1155 G; 1318 T;
                                                                                                                                                                                           601
                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cgcccctgcaggcagctgcgctcgctcgctcactgaggccgcccgggcaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cgcccctgcaggcagctgcgcgctcgctcgctcactgaggccgcccgggccaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1000;
                                                                                                                                                                                                                                                    gtgcagtagtcgccgtgaacgttctttttcgcaacgggtttgccgccccgcggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aaagtgatgtcgtgtactggctccgcctttttcccgagggtggggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aaagtgatgtogtgtactggctccgcctttttcccgagggtgggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gccaactccatcactagggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                           gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac 720
                                                                                                                                                                                                         agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa 660
                                                                                                                                                                                                                                                                                                                                      aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                  aatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                   aatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgccaccag 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                               catctactgacactgacatccactttttctttttttctccacaggtatcgatccaccatgca 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtgcagtagtcgccgtgaacgttctttttcgcaacgggtttgccgcccccgcggcaggtaa
atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                              agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                             agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt 780
                                                                                                                            gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                        agtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                                    aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                  catctactgacactgacatccactttttctttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1000; DB 22;
Pred. No. 4.6e-280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                               660
```

Ş

841 agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga

Sequence 11933 BP;

3258 A;

2818 C; 2717 G; 3140 T;

0 other

```
멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                cc (rAAV) construct, pAAV-F8-1. This expression vector comprises the HNF-3 abunin promoter, the first intron (-573 to +985) of human elongation CC factor-lalpha (EFlalpha) gene, human factor VIII coding sequence (hFVIII) coding sequence (hFVIII) coding sequence (hFVIII) coding region signal from human growth hormone (hGH). This sequence is inserted between the AAV inverted terminal repeat (ITR) regions. The CC first 57 bp encoding the 19 amino acid signal peptide, A1 and A2 domains CC first 57 bp encoding the 19 amino acid signal peptide, A1 and A2 domains CC and 5 amino acids from the N-terminus of the B domain. The light chain CC and C2 domains. Both the heavy and light chain segments are cloned CC into the same plasmid seperated by 42 nucleotides coding for 14 residues CC of the B domain, that is deleted. This plasmid is operably linked to CC control sequences, that directs the transcription and translation of the Factor VIII gene. The adeno-associated viral vectors are used for gene therapy to treat haemophilia. This method allows prolonged expression of the CC therapy, because of their broad host range, safety profile and duration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-OCT-1998;
24-MAR-1999;
30-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Recombinant Adeno Associated Vector; rAAV; pAAV-F8-1; human Factor VIII; hFVIII; HNF-3 albumin promoter; human elongation factor-lalpha; EFlalpha human growth hormone; hGH; inverted terminal repeat; ITR; haemophilia; gene therapy; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                             New recombinant adenovirus-associated vector, useful for gene therapy to treat hemophilia, comprises at least a portion of Factor VIII operably linked to control sequence -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Recombinant adeno associated vector construct, pAAV-F8-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD00121 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Couto LB, Colosi PC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200023116-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Adeno associated virus.
                                                                                                                                                                                                                                                                                                                                                      The present DNA sequence is a recombinant adenovirus-associated vector, (rAAV) construct, pAAV-F8-1. This expression vector comprises the municipal construct.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-339536/29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                    of expression in the infected hosts.
                                                                                                                                                                                                                                                                                                                                                                                                            Example 2; Fig 5; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaatggtccaatggcctctgacccactgtgccttacctactctatatctttctcatgtgga 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0104994.
99US-0125974.
99US-0364862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99WO-US24495.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11933 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EFlalpha;
```

4

```
В
                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                  901
                                                                                                                                   841
                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                            590
                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _
                                                                          gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
              tctcatgtggacctggtaaaagaccttgaattcaggcctcattggagcccta 1000
tctcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta
                                                             gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                           gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                           gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                         gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                          gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                       aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                    aacatogotaagocaaggocaccotggatgggtotgotaggtoctaccatocatocaggotgag
                                                                                                                                                                                                                                                                                                                                                                                    ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                     ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                    gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tottaaataccatotactgacactgacatccactttttctttttttctccacaggtatcga-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aggcaggtaagtgccgtgtgggttcccgcggggcctggcctctttacgggttatggccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgcccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gcagtagtcgccgtgaacgttctttttcgcaacgggtt-----tgccgccccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     actaggggttcctgcggcgcgcgcgtggtggtggcgcggggtaaa-----ctgggaaagt 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cagctgcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cagctgcgcgctcgctcgctcactgaggccgccgggcaaagcccggggcgtcgggcgcgcc 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgcgtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73.6%;
86.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 736.2; DB 21;
Pred. No. 2.6e-203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                             949
                                                                                                                                                                                            840
                                                                                                                                                                                                                           829
                                                                                                                            900
                                                                                                                                                          889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
```

밁 οy В Qy 망 Ş 밁 QΥ

δÃ Db Qy 밁 Qy

actaggggttcctgcggccgcacgcgtggtggcgcggggtaaa-----ctgggaaagt 185

tttggtcgcccggcctcagtgagcgagcgagcgcgcagagaggggagtggccaactccatc cagctgcgcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc

tttggtcgcccggcctcagtgagcgagcgagcgcagagagggagtggccaactccatc 120

Matches 870;

Conservative

Local Similarity

73.6%;

Score 736.2; DB 22; Pred. No. 2.6e-203; "" matches 118;

Indels

23;

Gaps

4

60

Length

2717 G; 3140 T;

0 other;

13 cagetgegegetegetegeteaetgaggeegecegggeaaageeegggegtegggeec

```
RESULT
AAD08612
ID AAD(
                         second recombinant adeno-associated virion comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is useful in gene therapy for treating haemophilia A in mammals, in particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. The present sequence is pAAV-F8-1 vector without the plasmid backbone. It comprises HNF-3.mouse albumin promoter, a synthetic intron based on human elongation factor lalpha (EFlalpha) and immunoglobulin G (IGG) intron sequences, B-domain deleted human factor VIII coding sequence, poly A signal based on rabbit beta-globin sequence and AAV inverted terminal repeats (ITRs) at the ends. The vector encodes both the light and heavy chains of human factor VIII.
Sequence 11933 BP; 3258 A;
                                                                                                                                                                                                                          The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises administering a recombinant adeno-associated virion (rAAV) compriant nucleotide sequence encoding the light chain of factor VIII and
                                                                                                                                                                                                                                                                                                                                               Treating blood clotting disorder, especially hemophilia in mammals, administering recombinant adeno-associated vectors which express blocoagulation factor VIII \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chimeric -
Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200145510-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Recombinant adeno-associated viral vector; rAAV; fablood clotting disorder; gene therapy; haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAAV-F8-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAD08612 standard; DNA; 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (AVIG-) AVIGEN INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human factor VIII expressing rAAV vector pAAV-F8-1 partial sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                              Fig 5; 90pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Colosi PC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oryctolagus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Adeno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                associated virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cuniculus.
2818 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              factor VIII; FVIII;
                                                                                                                                                                                                                               factor VIII and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ą
                                                                                                                                                                                                                                             comprising
                                                                                                                                                                                                                                                                                                                                                             ls, by
                                                                                                                                                                                                                             Ø
```

```
RESULT
AAF84647
ID AAF8
XX AAF8
AC AAF8
XC AAF8
XC AAF8
XC Plas
XC Plas
XX Ader
KW COAG
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                           Qy
                                                         Plasmid DLZ6 encoding human B-domain deleted factor VIII.
                                                                                                                                           AAF84647 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                coagulation
                             Adeno-associated virus vector; B-domain; factor VIII; haemophilia
                                                                                   29-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             590
                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                           770
                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aggcaggtaagtgccgtgtgggttcccgcggggcctggcctctttacgggttatggccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcagtagtcgccgtgaacgttctttttcgcaacgggtt----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gatgtcgtgtactggctcc---gcctttttcccgagggtggggggagaaccgtatataagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                  gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tecaceatgeaaatagagetetecacetgettettetgtgeettttgegattetgettt 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgcgtgccttgaattactgacactgacatccactttttcttttttctccacaggtatcgat 420
                                                                                                                                                                                                                          totcatgtggacotggtaaaagacttggaattcaggcotcattggagcocta
                                                                                                                                                                                                                                                                                                                                                                                            gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                  gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                                                                                                                                                              gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcattctt 949
                                                                                                                                                                                                                                                                                                                         gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tctcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta
                 disorder;
                                                                                    (first entry)
                                                                                                                                            DNA;
                                                                                                                                            7944
                                                                                                                                            ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --tgccgccccg
                                                                                                                                                                                                                 1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
```

```
밁
                          Qγ
                                                        멍
                                                                                 20
                                                                                                               Matches
                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                        vector. The vector comprises a heterologous nuclectide sequence encoding B-domain deleted factor VIII operably linked with at least one enhancer and at least one promoter. The method results in the production of high titer rAAV vector stocks carrying the B-domain deleted factor VIII transgenes and expression cassettes, which generate adequate titers of virus for in vivo administration. The recombinant vectors are useful for treating haemophilia A, where the liver expresses the encoded B-domain deleted factor VIII, which is secreted into the blood. They are also useful for the treatment of other coagulation disorders. The present sequence encodes a B-domain deleted factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
Hepatitis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          enhancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                  New recombinant adeno-associated virus vector, useful for treating haemophilia A, comprises heterologous nucleotide sequence encoding B-domain deleted human factor VIII operably linked with liver-preferred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      polyA_signal
                                                                                                                                                                                                                                                                                                                                                  The specification describes a recombinant adeno-associated virus (rAAV)
                                                                                                                                                                                                                                                                                                                                                                            Claim 64; Fig 1; 87pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P-PSDB; AAB67959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Walsh CE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-OCT-2000; 2000WO-US28221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200127303-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (UYNC-) UNIV NORTH CAROLINA
                                                                                                                                                                                 Sequence
                              76
                                                          15
                                                                                    16
    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-273781/28.
gcccgggcggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatcact 134
              ggtcgcccggcctcagtgagcgagcgagcgcgcagagagggagtggccaactccatcact 135
                                                     \verb|ctgcgcgctcgctcactgaggccgggccaaaggtcgcccgacgcccgggcttt| 74
                                                                       ctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgaccttt
                                                                                                                                                                                    7944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chao H,
                                                                                                                                                                                                                                                                                                                                                                                                         control element
                                                                                                                 Conservative
                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0158780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "inverted terminal repeat"
150..278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4916..5084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= d
/note= "TK polyA sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4840..491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= c
/note= "human B-domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420..4835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "inverted terminal repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= b
/note= "hepatitis
                                                                                                                                                                                  2142 A; 1902 C; 1909 G; 1991 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burstein H,
                                                                                                                            64.0%;
79.3%;
                                                                                                                 0;
                                                                                                                            Score 640; DB 22;
Pred. No. 1.8e-175;
                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lynch CM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  virus EnhI enhancer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         deleted factor VIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stepan AM,
                                                                                                                                           Length 7944;
                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Munson
                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ~
                                                                                                                  Gaps
```

DЬ Qy

135 136

aggggttcctgcggccgcacgcgtggt-ggcgcggggtaaactgggaaagtgatgtcgtg

aggggttcctcagatctctttctaagtaaacagtacatgaacctttaccccgttgctcgg

194 194

2

Ş

QΥ

20

```
RESULT
AAA49232
ID AAA4
XX
AC AAA4
XX
DT 26-S
DT 26-S
XX
Vect
XX
UE
KW Hemc
KW Oste
KW vasc
KW Vasc
KW Vasc
KW Vasc
KW Vasc
KW Vasc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
            Hemostatic; antianemic; antidiabetic; nootropic; neuroprotective; vector; osteopathic; antisickling; immunostimulant; gene therapy; collage; endothelial cell; peripheral blood; buffy coat cell; VEGF; PCR primer; vascular endothelial growth factor; bovine brain extract; haemophilia;
                                                                                                                                    Vector HSQReNeo for transforming endothelial cells.
                                                                                                                                                                                                                                                                                        AAA49232 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                              975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            315
                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                      gacttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                             gacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tactggctccgcctttttcccqaqggtggggggagaaccgtatataagtgcagtagtcgcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaaaagactctgtttgtagaattcacggttcaccttttcaacatcgctaagccaaggcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactac 490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cactgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctc 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tocacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactac 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aaaaaagcctctccacccaggcctggactcgagagcttcgaccaccatgcaaatagagctc 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccacccaggcctggaatgtttccacccaatgtcgagcagtgtggttttgcaagaggaagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ttgttcttaaataccatcgctccagggaatgt----ttgttcttaaataccatctactga 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ataggccatcagcgcatgcggatctcagtgtggttttgcaagaggaagcaaaaagcctct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtgaacgttctttttcgcaacgggtttgccgccccgcggcaggtaagtgccagggaatgt 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               554
```

밁 Qγ B δÃ Ω 뫄 ρ 망 γQ DЬ Š В Qy g Ş В δÃ 멍 Ş

В

```
Qγ
                                                                                                Qy
                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                     뭥
                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to a method for expanding the population of CC endothelial cells (EC) obtained from peripheral blood, by culturing, CC in contact with a collagen I coated surface, buffy coat cells obtained CC from peripheral mammalian blood in the presence of a culture medium CC containing vascular endothelial growth factor (VEGF) and free of bovine CC train extract. EC are useful for treating hemophilia by introducing it into the blood stream of a mammal, so that an effective amount of CC Factor VIII protein is secreted in the blood stream of the mammal. CC This sequence represents the vector HSQRaNeo where the human factor CC VIII gene into which an enhanced green fluorescent protein coding CC sequence (HSQ) has been inserted, is subcloned. Transgenic EC transduced CC in vitro are useful for improving prosthetic implants. EC is also useful for diagnosing clotting disorders where indication or disease is CC associated with a reduction in the activity of an enzyme. EC is also CC useful in gene therapy for treating the variety of diseases including CC adenosine deaminase deficiency, sickle cell anemia, thalassemia, CC hemophilla, diabetes, alpha-antitypsin deficiency, brain disorders cuch as Alzheimer's disease, heart diseases, defects in immune system, CC such as Alzheimer's disease, heart diseases, defects in immune system, cc.
                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                               Sequence 12445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Expanding population of endothelial cells useful to biocompatibilize implantable medical devices comprises contacting buffy coat cells with collagen I coated surface in culture medium comprising vascular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 19; Fig 4; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         endothelial growth factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (MINU )
                          559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sickle cell anaemia; thalassemia; diabetes; alpha-antitrypsin deficiency; Alzheimer's disease; brain disease; heart disease; immune system defect;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-412303/35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         08-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200032750-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (HEBB/)
                                                                                                                                                                                                                                                                                                                     Local Similarity
atttoctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagac
                                                                              agtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtggacgcaag
                                                                                                                                                         cttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgc
                                                                                                                                                                                                                                     tccactttttctttttctccacaggtatcgatccaccatgcaaatagagctctccacctg 438
                                                         agtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtggacgcaag
                                                                                                                                     cttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgc
                                                                                                                                                                                                                 tccgcatcgaccggatcggaaaacctctcgagccaccatgcaaatagagctctccacctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fracture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RP, Lin Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOLLAR J S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HEBBEL R P.
LIN Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UNIV EMORY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UNIV MINNESOTA.
                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                               BP; 3255 A; 2989 C; 2951 G; 3250 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0109687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99WO-US28033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            osteoporosis.
                                                                                                                                                                                                                                                                                                                   59.3%;
97.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lollar JS;
                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                 Score 593.2; DB 21
Pred. No. 8.6e-162;
                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                      DB 21;
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                    Length 12445;
                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                               0
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Б
 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
Hybrid Factor VIII with modified activity, comprises region from donor anticoagulant or antithrombotic protein - useful for treatment of coagulation disorders
                                                                                                                                                                                                                                misc_RNA
                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                             Factor VIII-db695-HCII; heparin cofactor II; blood coagulation; blood clotting; procoagulant; anticoagulant; antithrombotic;
                                                                                                                                                                                                                                                                                                                                                                                                          AAT69811;
                                                                                                                                                                                                                                                                                                                                                                                                                              AAT69811 standard; DNA; 5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1031
                                                                                                                                                                                                                                                                                                                                                                Factor
                                                                                                                                                                                                                                                                                                                                                                                     10-AUG-1997
                                                                                                                                                                                                                                                                                                Homo
                                                                                                                     13-NOV-1995;
                                                                                                                                          13-NOV-1996;
                                                                                                                                                                 22-MAY-1997
                                                                                                                                                                                       WO9718315-A1
                                                                                                                                                                                                                                                                                                                   haemophilia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  971
                                                                                                (IMMO ) IMMUNO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            911
                                            PSDB; AAW18670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccaccctggat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ttcaggcctcattggagcccta 1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccctggttggaagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaa 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tctgtttgtagaattcacggttcaccttttcaacatcgctaagccaaggccaccctggat 1030
                                                                                                                                                                                                                                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1997-289291/26
                                                                                                                                                                                                                                                                                                                                                                VIII-dB695-HCII
                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                     gene therapy;
                                                                                                                     95US-0558107
                                                                                                                                          96WO-EP04977
                                                                                                                                                                                                                           /-Lag= a
/product= Factor VIII-dB695-HCII
2225..2314
                                                                                                                                                                                                                                                               Location/Qualifiers 35..5020
                                                                                                                                                                                                          /product=
                                                                                                                                                                                                                      /*tag=
                                                                                                                                                                                                           heparin
                                                                                                                                                                                                                                                                                                                                                                                                                                ВP
                                                                                                                                                                                                            cofactor
                                                                                                                                                                                                           II region
                                                                                                                                                                                                           (aa51-81)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              970
```

RESULT AAV19581

8

AX II

AAV19581;

AAV19581 standard;

CDNA; 4832 BP

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         рЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                            밁
                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                       QY
                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                           망
밁
                           Ş,
                                                             멍
                                                                                         δÃ
                                                                                                                             DЬ
                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A DNA molecule (AAT69811) codes for Factor VIII-dB695-HCII (AAW18670), a hybrid protein in which amino acids 712-736 of Factor-dB695 (Pactor VIII del868-1562) B-domain are replaced by amino acids 51-80 from the acidic region (and potential thrombin-binding site) of human heparin cofactor II (HCII). It was obtd. by PCR amplification (see also AAT69812-13) of the HCII acidic region from total liver cDNA, fusion to sequences encoding Factor VIII aa706-711 and aa737-743, and incorporation of the construct into plasmid pCLB-dB695. The hybrid protein, which can be expressed using gene therapy techniques, has increased procoagulant activity owing to the HCII acidic region, and can be used to treat blood coming to the HCII acidic region, and can be used to treat blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 5035 BP; 1484 A; 1127 C; 1110 G; 1314 T; 0 other:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      coagulation disorders such as haemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          448
 607
                                                                                                                               487
                                                                                                                                                                                                427
                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                             307
                                                                                                                                                                                                                                                                                                                                                                                                            628 agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            568 tagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgt
                                                                 547
                                                                                                                                                                                                                                                                                            748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtcatgggactatatgcaaagtgatctcggtgagctgcctgtggacgcaagatttcctcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtcatgggactatatgcaaagtgatctcggttgagctgcctgtggacgcaagatttcctcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact
                                                                              gtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaattcaggcct
                                                                                                                                                                                                                                                                             ttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttctgagggagc
                                                                                                                                                                                                                                                                                                                                         aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc
                                                                                                                                            aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact
                                                                                                                                                                                                               tgaatatgatgatcagaccagtcaaaggggagaaagaagatgataaagtcttccctggtgg
                                                                                                                                                                                                                                                            ttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttctgagggagc
                                                                                                                                                                                                                                                                                                                           aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc
                                                                                                                                                                                                                                                                                                                                                                                           agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct
                                                                                                                                                                                                                                                                                                                                                                                                                                                            tagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgt
                              cattggagcccta
                                                             gtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaattcaggcct
                                                                                                                             aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact
                                                                                                                                                                                              tgaatatgatgatcagaccagtcaaagggagaaagaagatgataaagtcttccctggtgg
cattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52-60;
 619
                                1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59.2%;
97.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 592.2; I
Pred. No. 1.1e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .le-161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                  807
                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                    909
                                                                                                   987
                                                                                                                                    546
                                                                                                                                                                   927
                                                                                                                                                                                                                                                                                                                                  366
                                                                                                                                                                                                                                                                                                                                                               747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

06-AUG-1998

(first entry)

```
CC expressing a therapeutic protein. The RRV preparation is resistant to CC degradation by human complement and is capable of inducing long term CC systemic expression of the therapeutic protein when administered CC intravenously to a human. The long term systemic expression results in a CC measurable level of the therapeutic protein being produced in the blood CC of the human for a period of at least 30 days after the administration of CC therapeutic protein to treat, e.g. haemophilia A, haemophilia B, CC thrombosis, hypercoagulable disorders, liver diseases such as hepatitis, CC disorders such as thalassemia, phenylketonuria, Lesch-Nyhan syndrome, CC severe combined immundeficiency (SCID), cystic fibrosis, Duchenne's CC Muscular Dystrophy, inherited emphysema, familial hypercholesterolemia, CC antitrypsin deficiency, Guacher's syndrome, anaemia, infections such as CC HIV infection, high blood pressure, Alzheimer's disease, autoimmune or inflammatory disease or graft versus host disease. RRV's are capable of CC surviving inactivation in human serum thereby allowing efficient gene CC transfer over prolonged periods of time.
                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                                                                                                                         Sequence 4832 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New replication defective recombinant retro-viruses - which can be administered to provide long term systemic expression of therapeutic protein in blood, useful in, e.g. treating hyper-coagulable disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           factor VIII. This is used in the construction of recombinant retroviral vectors expressing human factor VIII. The invention provides the preparation of replication defective recombinant retrovirus (RRV)
372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hepatitis; thalassemia; phenylketonuria; Lesch-Nyhan syndrome; diabetes; cystic fibrosis; Duchenne's Muscular Dystrophy; hypercholesterolemi; hypopituitarism; adenine deaminase deficiency, HIV infection; anaemia; Guacher's syndrome; high blood pressure; Alzheimer's disease, autoimmune;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 28; Pages 210-213; 272pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                De LA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inflammatory disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           haemophilia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Replication defective; recombinant retrovirus; RRV; therapeutic
                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA encodes the beta-domain deleted SQN deletion protein of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-086966/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JR,
VEGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             factor VIII beta-domain deleted SQN deletion cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Barber JR, Boder M, Chang SMW, Chon
D, Depolonj, Greengard J, Hsu DC,
Lee R, Mittelstaedt DM, Prussak CE,
                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thrombosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97WO-US11784
                                                                                                                                                     1381 A; 1089 C; 1055 G;
                                                                             59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                factor VIII; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypercoagulable
                                                            0,:
                                                      Score 590.6; DB 19
Pred. No. 3.2e-161;
0; Mismatches 24;
                                                                                                                                                       1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorder; liver
                                                                                              DB 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chong
                                                                                                                                                     T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ibanez CE;
                                                          Indels
                                                                                             Length 4832,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Respess JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Χ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     disease;
                                                          0;
                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein;
                                                          0
```

δÃ

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
        04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                         02-JUL-1997;
                                                                                                         WO9800542-A2
                                                                                                                                                                                Synthetic
                                                                                                                                                                                                                             Factor VIII; blood clotting; haemophilia A;
                                                                                                                                                                                                                                                                                                                             AAV15338
                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                  retrovirus;
                                                                                                                                                                                                                                                      Human Factor VIII SQN deletion mutant DNA.
                                                                                                                                                                                                                                                                               20-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                         628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28
                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                      acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                   acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                  tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgttatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                    tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aagtottooctggtggaagocatacatatgtotggcaggtootgaaagagaatggtocaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccacctgcttcttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct
                                                                                                                                                                                                                                                                                                                             standard; DNA; 4832
                                                                                                                                                                                                                  vector; human;
                                                                                                                                                                                                                                                                              (first entry)
                   97US-0869309
96US-0645601
                                                         97WO-US11785
                                                                                                                                             Location/Qualifiers 72..4445
                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                        656
                                                                                                                                                                                                                              gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                147
```

```
Дb
                                                                                                                                                               Qy
                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                              Ş
                                                                  밁
                                                                                             QΥ
                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                             В
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This DNA sequence includes a coding region for the B domain deletion mutant SQN (see AAW44372) of human Factor VIII. The SQN mutant is created by fusing Ser-743 to Gln-1638 of native Factor VIII (see AAW44373) to form a Ser-Gln-Asn (SQN) link between the and A3 Factor VIII domains. When compared to plasmid-derived and A3 Factor VIII domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Factor VIII, the SQN deletion does not influence the in vivo pharmacokinetics, but the reduced size of the molecule appears to decrease proteolytic degradation. The invention relates to preparations of replication defective recombinant retrovirus (RV) expressing a B domain-deleted human Factor VIII protein, where the recombinant RV is capable of infecting human cells, is resistant to degradation by human complement and is capable of inducing long-term (at least 30 days and up to 6 months or longer post-injection) systemic expression of Factor VIII when administered to a haemophilia A patient.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             De La
Jolly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 6; Page 174-175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New replication defective recombinant retroviruses - which express domain-deleted human factor VIII or human factor IX for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          treatment of haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4832 BP; 1381 A; 1089 C; 1055 G; 1307 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CHIR ) CHIRON CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      432
                                                                                                                                                                                                        328
                                                                                                                                                                                                                                         672
                                                                                                                                                                                                                                                                           268
                                                                                                                                                                                                                                                                                                                                             208
                                                                                                                                        388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-086967/08
                                                                                                                                                                                                                       cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                             acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                 tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcgggtgagctgccgtggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct
                aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                      cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                     cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                           aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                       aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
aagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggteeaa
                                                                                    cacttaagaacatggcttcccatcctgtcagtcttcatgctgtttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                             acgcaagatttcctcctagagtgccaaaatcttttccattcaaccacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             卪.
                                                                  tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vega
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mittelstaedt DM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Barber JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Depolo NJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        236pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Boder M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             der M, Chang SM, Chong
Greengard J, Hsu DC,
M, Prussak CE, Respess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 590.6; DB 19
Pred. No. 3.2e-161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ibanez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 4832;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The SQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                        447
                                                                                                                                                                        791
                                                                                                                                                                                                          387
                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                   911
                                                                     507
                                                                                                                                                                                                                                                                                                                                                                                                                   207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
```

```
RESULT :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                           Qy
                                            Query Match
Best Local :
                                                                                                            A full-length cDNA clone (AAT31031) codes for human Factor-VIII (AAW00465), a trace plasma glycoprotein which acts as a cofactor in conjunction with Factor-IXa in the activation of Factor-X. Retroviral vectors comprising the full-length cDNA can be efficiently packaged into infectious retroviral particles. These may be used to transduce cells either in vivo or ex vivo. Factor-VIII expressed from such transduced cells will be processed and transported in a fashion analagous to the expression product of a normal Factor-VIII gene. Retroviral particles harbouring such vectors will be useful in the gene therapy of haemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAT31031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAT31031 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Factor-VIII; retrovirus; vector; haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Factor-VIII full-length cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-SEP-1996
                                                                                           Sequence 8967 BP; 2841 A; 1898 C; 1833 G;
                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                      Retroviral vector directing expression
                                                                                                                                                                                                                                                                                                             P-PSDB; AAW00465
                                                                                                                                                                                                                                                                                                                                                Bodner M,
                                                                                                                                                                                                                                                                                                                                                                                              30-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                            11-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9621035-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ОШОН
                                                                                                                                                                                                                                                                                                                                                                     (CHIR ) CHIRON VIAGENE INC
                                                                                                                                                                                                                                                                                                                                                                                                                      18-DEC-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  628 acttgaattcaggcctcattggagcccta
372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                        in the gene therapy and treatment
                                                                                                                                                                                                                                                                                                                          1996-334010/33.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                  605;

 Page 58-68; 86pp; English.

                                               Similarity
                                                                                                                                                                                                                                                                                                                                               Chang S,
                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                              94US-0366851
                                                                                                                                                                                                                                                                                                                                                                                                                      95WO-US16582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag= b
167..7162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= & 110..166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110..7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA; 8967
                                                                                                                                                                                                                                                                                                                                               Chi-Tang
                                            59.1%;
96.2%;
                                  0;
                                               Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                 Hsu
                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1000
                                               590.6; DB 17
No. 4.2e-161;
                                                                                                                                                                                                                                                                                                                                                 De
                                                                                                                                                                                                                                                                           of full length factor VIII of haemophilia A
                                                                                              2395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Α,
                                                                                             T; 0 other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                     Indels
                                                         Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                therapy;
                                     0;
                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            971
                                      Ç
```

В

66 attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct 125

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                             24-MAY-1999;
                                                                                                                    24-MAY-2000;
                                                                                                                                             30-NOV-2000
                                                                                                                                                                   WO200071714-A2
                                                                     (AMNA-) AMERICAN NAT RED CROSS
                                                                                                                                                                                                                      Factor VIII; human; A2 domain; C2 domain; LRP-mediated plasma clearance; receptor-dependent clearance; receptor-independent clearance;
                                                                                                                                                                                                                                                            Human factor VIII cDNA, SEQ ID NO:1.
                                                                                                                                                                                                                                                                                     13-MAR-2001
                                                                                                                                                                                                                                                                                                                                 AAC87526 standard;
                                                                                                                                                                                                                 haemophilia;
                                                                                                                                                                                                                receptor-dependent clearance; haemophilia; half-life; ss.
                                                                                                                                                                                                                                                                                                                                                                                           999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                         11
                        2001-025163/03
                                                                                                                                                                                                                                                                                                                                                                                                    acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                        acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                   tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acgcaagatttcctcctagagtgccaagatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                              EL,
            AAB48843
                                              Strickland
                                                                                                                   2000WO-US14111.
                                                                                                                                                                                                                                                                                   (first entry)
                                                                                             99US-0135847.
                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                                                                                                                                                                                                                                                                                 8967
                                                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                     665
                                                                                                                                                                                                                                                                                                                                                                                                                                                             971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
```

```
The invention relates to human factor VIII mutants comprising an amino acid substitution at one or more positions in the A2 domain and/or an C2 amino acid substitution at one or more positions in the C2 domain. CC The invention also encompasses a factor VIII mutant which lacks a B C2 domain (AAB48842). The factor VIII mutants which lacks a B C2 domain (AAB48842). The factor VIII mutants which lacks a B C2 domain classes a factor VIII, while C2 domain mutants (receptor-dependent) clearance of factor VIII, while C2 domain mutants C2 to a method of using RAP (receptor associated protein), a protein which CC inhibits LRP (low density lipoprotein related protein)—mediated ligand CC internalisation, to increase the half-life of factor VIII. The mutant C2 for treating haemophilia. RAP, LRP-binding RAP mutants or fragments, and concleic acids encoding them may also be used in the treatment of CC haemophilia, in combination with a mutant factor VIII protein or DNA of CC the invention. The invention provides means of increasing the half-life CC of factor VIII by reducing its clearance from plasma. The present cCC sequence represents cDNA encoding human factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Factor VIII mutants having increased half-life useful for treating hemophilia, comprise one or more amino acid substitutions in the A2 and/or C2 domain of factor VIII \,
  Sequence 8967
  BP; 2841 A; 1898 C; 1833 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86-101; 121pp; English.
2395 T; 0 other;
```

Score 590.6;

DB

0;

```
밁
                         δÃ
                                                        밁
                                                                                 Q
                                                                                                               B
                                                                                                                                         δÃ
                                                                                                                                                                       В
                                                                                                                                                                                              Qy
                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                               δð.
                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               БР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                        426
                                                                                                                                                                                                                                         672 cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                  612 aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
             tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                      aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                    aagtottccctggtggaagccatacatatgtctggcaggtcctgaaagagaaatggtccaa
                                                                                                             cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                        acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                   aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                          acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                            tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct
                                                                                                                                                                                                                                                                                                                                                                                                tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No. 4.2e-161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22; Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
665
                            971
                                                      605
                                                                                                               545
                                                                                                                                                                       485
                                                                                                                                                                                                 791
                                                                                                                                                                                                                                                        731
                                                                                                                                                                                                                                                                                    365
                                                                                                                                                                                                                                                                                                                671
                                                                                                                                                                                                                                                                                                                                           305
                                                                                                                                                                                                                                                                                                                                                                      611
                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
```

δõ

acttgaattcaggcctcattggagcccta

밁

666 acttgaattcaggcctcattggagcccta

694

```
ANSOOS4

ANSOOS4

ANSOOS4

ID ANNE

XX ANSO
DE Hum

XX Hum

XX Hum

KW Hum

KW Hum

FF CDS

XX EP1

YX CDS

XX IS

PN EP1

PN CDS

XX IS

PN EP1

PN US

PF CDS

XX IS

PN US

                                                                                                                 망
                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
В
                                             QY
                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             plasma, and activates factor X to Xa in the presence of factor IXA, ca and phospholipid. These to activities are inactivated by antibodies specific for factor VIII. The activity of the prod. is bound to an immobilised monoclonal antibody specific for factor VIII. Factor VIII activity is activated by thrombin. The activity is bound to, and can be eluted from, immobilised von Willebrand factor. Dose of factor VIII is 20-40 units/kg over 8 hours i.v. for maintenance therapy for haemophilia, 40 units/kg for preoperative conditions, or 15-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human factor VIII; ss cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-OCT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAN50054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAN50054 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     produced in pure form and in useful amts. using recombinant DNA technology. Factor VIII can be used to correct factor VIII deficient plasma, and activates factor X to Xa in the presence of factor IXa,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The gene encodes human factor VIII. The factor VII is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1985-277976/45.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-NOV-1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EP160457-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 8975 BP; 2849 A; 1898 C; 1833 G; 2395 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig. 10A(I)-10C(III); 109pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New recombinant functional human factor VIII or deriv. - useful for treating haemophilia and obtd. as pure prod. by recombinant DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GETH ) GENENTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-APR-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-APR-1985;
                                                                                                                                                                                                                                                                    372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                          492
                                                                                                                    126
   186
                                                                                                                                                                                                                                  66
                                                                                                           attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct 125
                                                                                                                                                                                                                                                                                                                                                    605;
                           tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             factor
                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for minor haemorrhaging.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vehar GA,
                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VIII gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84US-0602312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85EP-0302734.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110..7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                            59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lawn RM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8975
                                                                                                                                                                                                                                                                                                                                                 Score 590.6; DB 6; Pred. No. 4.2e-161; 0; Mismatches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wood WI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0 other;
                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                           Length 8975;
                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                          0;
```

```
RESULT 4
AAZ3864
AAZ3864
ID AAZ3
XX 28-AZ3
XX 28-AZ3
XX 28-AZ3
XX 8-AZ3
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Factor VIII; haemophilia; proteolysis; heavy chain; light chain; secretion; von Willebrand Factor; vWF; C2 domain; intron 22; inv non-functional; bleeding disorder; coagulation; treatment; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAZ38604 standard;
                                                                                                                                                                                                                                                                                                                                    mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                           mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                            signal_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human full-length factor VIII cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2000
                                                  20-MAY-1998;
                                                                                                17-MAY-1999;
                                                                                                                                                25-NOV-1999
                                                                                                                                                                                              W09959622-A1
                                                                                                                                                                                                                                                                polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
(GETH ) GENENTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cacttaagaacatggcttcccatcctgtcagtcttcatgctgtttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                      /*tay-
/product= "P
8948..8953
                                                                                                                                                                                                                                                                                                              /product= "
5234..7162
/*tag= c
                                                     98US-0082000
                                                                                                  99WO-US10872
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product= "Human full-length factor VIII" 110..166
                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= b
167..5233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110..7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA; 8975 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                       ۵
                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                   "Maximum-length
                                                                                                                                                                                                                                                                                              "Human factor VIII light chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                694
                                                                                                                                                                                                                                                                                                                                                                   human
                                                                                                                                                                                                                                                                                                                                                                   factor VIII heavy chain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      inversion;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           671
```

```
Qy
           Вb
                                              QY
                                                                                          В
                                                                                                                                                                           В
                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This sequence represents cDNA encoding the full-length human factor CC VIII. In this form, the protein is 300 kD in size with the domain CC structure Al-A2-B-A3-Cl-C2. However, prior to secretion, this 300 kD CC protein is proteolysed into a heavy chain (Al-A2-B, with continued CC length) and a light chain (A3-Cl-C2) that remains non-covalently attached CC length) and a light chain (A3-Cl-C2) that remains non-covalently attached CC length) and a light chain (A3-Cl-C2) that remains non-covalently attached CC length) and a light chain, factor VIII is rapidly cleared from the circulation unless it is bound by the plasma protein von Willebrand CC Ractor (vWF). Factor VIII binds to vWF through the light chain, with CC Haemophilia A is frequently caused by an intron 22 inversion in the factor VIII gene, which separates the gene into two sections, exons 1-22 becoming inverted and localised telomeric to the original site, while CC exons 23-26 remain isolated at the original site. Exons 23-26 a portion CC of the Cl and all of the C2 domains, without which factor VIII is con-functional. The factor VIII gene product of individuals with this CC on proteolysis is non-functional, resulting in a bleeding disorder. The CC invention relates to a novel method for for treating haemophilia A in a method for method comprises domains Al-A2-B-A3 plus a fragment of Cl, which CC invention relates to a novel method for for treating haemophilia A in a method from well-characterised starting materials which therefore conversion. The recombinant factor VIII products of this invention are derived from well-characterised starting materials which therefore when using donated plasma. Furthermore, the invention provides a more
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           when using donated plasma. Furthermore, the invention provides a more economic and potentially more effective treatment for haemophilia. The is also a need of providing factor VIII activity to patients who produce or are at risk of producing antibodies against full-length
                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                         492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 9; 50pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New method for treating hemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-053195/04.
P-PSDB; AAY52537.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vehar GA;
                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                                                                                                                                                             432
                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                        cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                         aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                             acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                     aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                     acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                        tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                            tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                            ccacctgcttcttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                ccacctgcttctttctgtgcctttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; 1899 C; 1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of producing antibodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 590.6; DB 21;
Pred. No. 4.2e-161;
""" matches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2395 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         against full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 8975;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
      425
                                                                                     365
                                                                                                                               671
                                                                                                                                                                       305
                                                                                                                                                                                                               611
                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
```

```
RESULT 1
AAF60309
ID AAF6
            cc relating to a crystal of protein-ligand complex, which comprises an convergence of the protein coordinates of the protein-ligand complex core convergence of the protein-ligand complex core convergence of the protein-ligand complex convergence of the protein-ligand complex convergence of the protein-ligand complex convergence of the crystal treating the C2 domain of, and lacks at least 2000 amino convergence of the crystal is useful in drug screening assays. The method comprises selecting a potential ligand by performing structure-based drug design with a three-dimensional structure determined for the crystal, contacted with the ligand binding domain of factor VIII and the binding is detected. A potential ligand is selected as a potential drug on the basis of its binding to the ligand binding domain of factor VIII with a similar affinity to a standard ligand, such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЪ
                                                                                                                                                                                                                                     The present sequence was used in an example illustrating an invention relating to a crystal of protein-ligand complex, which comprises an
                                                                                                                                                                                                                                                                                                                                  Crystals of protein-ligand complex useful for developing new therapeutic drug agents, comprises carboxy terminal C2 domain of human
                                                                                                                                                                                                                                                                                      Example; Page 60-64; 72pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 drug screening;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human factor VIII C2 domain cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HUTC-) HUTCHINSON CANCER RES (UNIW ) UNIV WASHINGTON.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-AUG-2000; 2000WO-US22226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200112836-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-MAY-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF60309 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14
                                                                                                                                                                                                                                                                                                                                                                                              2001-211229/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggteeaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                          coagulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor VIII;
                                                                                                                                                                                                                                                                                                                                                                                                                              Pratt K, Fujikawa K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0148907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 III; crystal; protein-ligand complex;
coagulation inhibitor; haemophilia; ;
                                                                                                                                                                                                                                                                                                                        agents, comprises carboxy factor VIII and a ligand
 phosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CENT FRED
or sulphate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       694
 The method is useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         911
```

```
ARV15359
ID AAV15359
ID AAV15359
ID AAV16
AC AAV1
XX
AC AAV1
XX
DT 20-J
XX
DE Huma
XX
Entry
Cos Home
XX
OS Home
                                                                                                                                                        Дd
                                                                                                                                                                     δÃ
                                                                                                                                                                                          뫄
                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                   日
                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             identifying candidate drugs that inhibit coagulation. The N-terminal truncated factor VIII is also useful for identifying and analysing mutant variants of the C2 domain of factor VIII that can be incorporated into full-length factor VIII. The variants are useful for treating haemophiliac patients to display reduced or altered immune responses to
                   retrovirus;
                             Factor VIII;
                                                                   20-JUL-1998
                                                                                                         AAV15359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 9029 BP; 2860 A; 1910 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        treatments with factor VIII.
                                                                                                                                                        728
                                                                                                                                                                          972
                                                                                                                                                                                              899
                                                                                                                                                                                                                                                                         548
                                                                                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                 732
                                                                                                                                                                                                                                                                                                                                                                                          368
                                                                                                                                                                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                                                                                                                                                 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                    552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
 sapiens
                                                                                                                                                                acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                          tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                     acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                                               aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                        aagtottccctggtggaagccatacatatgtctggcaggtcctgaaagagaaatggtccaa
                                                                                                                                                                                                                                                                      cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgttatcctactgga
                                                                                                                                                                                                                                                                                                                                                           cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                       aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                  aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                        acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                           cacttaagaacatggcttcccatcctgtcagtcttcatgctgtttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                  cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                              acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct 187
                                               Factor VIII DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                        standard;
                   vector; human;
                           blood clotting; haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59.1%;
96.2%;
                                                                                                        9068
                   SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 590.6; DB 22;
Pred. No. 4.2e-161;
0; Mismatches 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ი</u>
                           Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2411 T;
                           gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                            727
                                                                                                                                                                                                              971
                                                                                                                                                                                                                                 667
                                                                                                                                                                                                                                                    911
                                                                                                                                                                                                                                                                       607
                                                                                                                                                                                                                                                                                         851
                                                                                                                                                                                                                                                                                                             547
                                                                                                                                                                                                                                                                                                                               791
                                                                                                                                                                                                                                                                                                                                                  487
                                                                                                                                                                                                                                                                                                                                                                                        427
                                                                                                                                                                                                                                                                                                                                                                                                          671
                                                                                                                                                                                                                                                                                                                                                                                                                               367
                                                                                                                                                                                                                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
       δÃ
                                         Qy
                                                                В
                                                                                 ρy
                                                                                                     밁
                                                                                                                       Ωy
                                                                                                                                            맑
                                                                                                                                                             δÃ
                                                                                                                                                                                 DЪ
                                                                                                                                                                                                   Ω
                          밁
                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                      Š
```

```
Query Match
Best Local S
Matches 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (see AAW44373). The invention relates to preparations of replication defective recombinant retrovirus (RV) expressing a B domain-deleted human Factor VIII protein, such as the SQN deletion mutant (see AAW44372), where the recombinant RV is capable of infecting human cells, is resistant to degradation by human complement and is capable of inducing long-term (at least 30 days and up to 6 months or longer post-injection) systemic expression of Factor VIII when administered to a haemophilia A patient.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Allen
De La
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New replication defective recombinant retroviruses -domain-deleted human factor VIII or human factor IX itreatment of haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 9068 BP; 2885 A; 1908 C; 1867 G; 2408 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 28; Page 164-166; 236pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-086967/08.
P-PSDB; AAW44373.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Jolly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CHIR ) CHIRON
      732
                                                                                                                                                                                                             322
                                                                                                                                                                                                                                                                                                                                    492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                           cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                             aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                          actgacatccactttttcttttctccacaggtatcgatccaccatgcaaatagagctct 431
cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                          cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                       aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                      acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                       tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                             tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                         ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                      attaaccttttgcttctccagttgaacatttgtagcaataagtcatgcaaatagagctct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JR,
Vega
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Barber JR, Boder M, Chang S;
D, Depolo NJ, Greengard J,
Mittelstaedt DM, Prussak CE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97WO-US11785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  includes a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 590.6; DB 19 Pred. No. 4.3e-161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coding region for human Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Respess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K;
Ibanez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - which
for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of replication
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9068;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        express
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
    791
                                                                                                                         441
                                                                                                                                                                671
                                                                                                                                                                                                                                                 611
                                                                                                                                                                                                                                                                                                                                                                                                                 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                        201
                                                                                                                                                                                                        381
                                                                                                                                                                                                                                                                                          321
                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ш
```

Search completed: January 17, 2002, 16:34:09 Job time: 12554 sec

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No
  pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Issued_Patents_NA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-740-211-14_COPY_1_1000
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                January 17, 2002, 16:27:13; Search time 118.22 Seconds (without alignments)
1915.733 Million cell updates/sec
Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        351203 seqs, 113238999 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgcccctgcaggcagctgcg.....caggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/BCCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/backfiles1.seq:*
  4999
4999
11933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933
111933

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멂
                 US-09-470-618-14
US-09-264-862-14
US-09-470-618-13
US-09-470-618-13
US-09-470-618-13
US-09-243-539-1
US-08-585-107-1
US-08-251-937A-3
US-08-251-937A-3
US-08-670-707A-1
US-08-670-707A-1
US-08-670-707A-1
US-08-670-707A-1
US-08-670-707A-1
US-08-683-899B-2
US-08-670-594A-1
US-08-670-707A-1
US-08-670-707A-5
US-08-670-707A-5
US-08-670-707A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                         Sequence 14, Appl
Sequence 13, Appl
Sequence 13, Appl
Sequence 13, Appl
Sequence 1, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 1, Appli
Sequence 7, Appli
Sequence 2, Appli
Sequence 41, Appl
Sequence 1, Appli
Sequence 1, Appli
Sequence 7, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 5, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                               Patent No.
```

Query Match Best Local Similarity 100.0%; Pred. No. 1.3e-305; Best Local Similarity 100.0%; Pred. No. 1.3e-305; Best Local Similarity 100.0%; Pred. No. 1.3e-305; Matches 1000; Conservative 0; Mismatches 0; Indels 0; Gaps of the conservative o	US-09-470-618-14 (US-09-470-618-14 (US-09-470-618-14 (Sequence 14, Application US/09470618 Patent No. 6200560 (GENERAL INFORMATION: APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C. APPLICANT: Colosi, Peter C. APPLICANT: Colosi, Peter C. FILE OF INVENTION: by Target Cells FILE REFERENCE: Avigen-04082 CURRENT FILING DATE: 1999-12-22 EARLIER APPLICATION NUMBER: US/09/470,618 CURRENT FILING DATE: 1999-07-30 EARLIER FILING DATE: 1999-07-30 EARLIER FILING DATE: 1999-07-24 EARLIER APPLICATION NUMBER: 60/125/974 EARLIER APPLICATION NUMBER: 60/104/994 EARLIER FILING DATE: 1999-03-24 EARLIER FILING DATE: 1999-03-24	28 451 4 45.1 7493 5 PCT-US94-13200-5 Sequence 5, Appli 29 423.8 42.4 4334 2 US-08-670-7707A-38 Sequence 38, Appl 31 423.8 42.4 6402 2 US-08-670-7707A-36 Sequence 36, Appl 32 423.8 42.4 6402 2 US-08-670-7707A-36 Sequence 36, Appl 32 423.8 42.4 6402 4 US-09-037-601-36 Sequence 36, Appl 33 40.3 30.3 4451 3 US-08-717-294-42 Sequence 42, Appl 23 415.1 415.1 4999 4 US-09-364-862-14 Sequence 14, Appl 25 40.3 415.1 11933 4 US-09-470-618-13 Sequence 14, Appl 38 13.8 1185 1 US-07-757-536B-5 Sequence 13, Appl 38 13.8 1185 1 US-07-757-536B-5 Sequence 13, Appl 38 13.8 1561 6 5225348 4 Sequence 4, Appl 38 13.8 1561 1 US-07-757-536B-1 Sequence 5, Appl 38 13.8 1561 6 5225348 4 Sequence 1, Appl 38 13.8 1561 6 5225348 4 Sequence 2, Appl 39 134 6 13.5 8299 1 US-08-62-014-2 Sequence 2, Appl 39 134 6 13.5 8299 1 US-08-62-014-2 Sequence 5, Appl 39 134 6 13.5 8299 1 US-08-623-137-3 Sequence 2, Appl 39 134 6 13.5 8299 1 US-08-93-334-5 Sequence 5, Appl 39 134 6 134 6 135 6 135 6 135 6 135 6 135
0;		

```
APPLICANT: COULD, Linda B.

APPLICANT: COLOSI, Peter C.

TITLE OF INVENTION: BENO-ASSOCIATED VECTORS FOR TITLE OF INVENTION: BY TAKET TITLE OF INVENTION: CELLS

FILE REFERENCE: AVIGEN-03743

CURRENT APPLICATION NUMBER: US/09/364,862

CURRENT FILING DATE: 1999-07-30

EARLIER APPLICATION NUMBER: 60/125,974

EARLIER APPLICATION NUMBER: 60/125,974

EARLIER APPLICATION NUMBER: 60/104,994

EARLIER FILING DATE: 1999-03-24

EARLIER FILING DATE: 198-10-20

NUMBER OF SEQ ID NOS: 14

SOFTWARE: PATENTIN Ver. 2.0
                                                                                                                                                                                                                                                                                       RESULT 2
US-09-364-862-14
                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
SEQ ID NO LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                       Sequence 14, Application US/09364862 Patent No. 6221349
                 ID NO 14
                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                              gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agaagatgataaagtottocotggtggaagcoatacatatgtotggcaggtootgaaaga
                                                                                                                                                                                                                                                                                                                                                                                                       gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gccaaggccaccetggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               catctactgacactgacatccactttttctttttctccacaggtatcgatccaccatgca 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aatagagctctccacctgcttctttctgtgcctttttgcgattcttgcttttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    catctactgacactgacatccactttttcttttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4999
                                                                                                                                                                                           FOR EXPRESSION OF FACTOR VIII
                                                                                                                                                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
```

```
Ω
                                           DЬ
                                                                QΥ
                                                                                              맑
                                                                                                                      Qy
                                                                                                                                                                       Qy
                                                                                                                                                                                                      В
                                                                                                                                                  B
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; FEATURE:
; OTHER INFORM
US-09-364-862-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Description of Artificial Sequence:
                   901
                                                                                               781
                                                                                                                                                   721
                                                                                                                                                                            721
                                                                                                                                                                                                      661
                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
les 1000; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             بر
agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                     agaagatgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaaga
                                                                                           atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                       atcctactggaaagcttctgagggagctgaatatgatgatcagaccagtcaaagggagaa
                                                                                                                                                             agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                              gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                               agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                                 gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                                                                                                                                                                                                                                                                                                                    aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                        aatagagctctccacctgcttctttctgtgcctttttgcgattctgctttagtgccaccag
                                                                                                                                              agtggtcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgt
                                                                                                                                                                                                gccaaggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatac
                                                                                                                                                                                                                                                   agtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaa
                                                                                                                                                                                                                                                                                                     gctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttccattcaacacctc
                                                                                                                                                                                                                                                                                                                                                      aagatactacctgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtga
                                                                                                                                                                                                                                                                                                                                                                                                         aatagagctctccacctgcttctttctgtgccttttgcgattctgctttagtgccaccag
                                                                                                                                                                                                                                                                                                                                                                                                                                                           catctactgacactgacatccactttttctttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catctactgacactgacatccactttttcttttttctccacaggtatcgatccaccatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtgcagtagtcgccgtgaacgttctttttcgcaacgggtttgccgccccgcggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9tgcagtagtcgccgtgaacgttctttttcgcaacgggtttgccgccccgcgggcaggtaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaagtgatgtcgtgtactggctccgcctttttcccgagggtgggggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aaagtgatgtogtgtactggctccgcctttttcccgagggtgggggagaaccgtatataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gccaactccatcactaggggttcctgcggccgcacgcgtggtggcgcgggggtaaactggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cgcccctgcaggcagctgcgctcgctcactgaggccgcccgggcaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cgcccctgcaggcagctgcgcgctcgctcgctcactgaggccgcccgggcaaaagcccggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1000; DB 4;
Pred. No. 1.3e-305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                960
                                                                  900
                                                                                            840
                                                                                                                     840
                                                                                                                                                                         780
                                                                                                                                                                                                   720
                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                       рь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , OTHER INFORMATION: Description of Artificial Sequence: US-09-470-618-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-470-618-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
Qy
                                     DЬ
                                                                          δō.
                                                                                                                  밁
                                                                                                                                                   δÃ
                                                                                                                                                                                               В
                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                            Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Adeno-Associated Vectors for Expression of Factor VIII
TITLE OF INVENTION: by Target Cells
FILE REFERENCE: Avigen 04082
CURRENT APPLICATION NUMBER: US/09/470,618
CURRENT FILING DATE: 1999-12-22
EARLIER APPLICATION UMBER: 09/364,862
EARLIER FILING DATE: 1999-07-30
EARLIER FILING DATE: 1999-07-30
EARLIER FILING DATE: 1999-07-30
EARLIER FILING DATE: 1999-03-24
EARLIER FILING DATE: 1999-103-24
EARLIER FILING DATE: 1999-10-20
MUMBER: OF SEQ ID NOS: 15
NUMBER: OF SEQ ID NOS: 15
NUMBER: OF SEQ ID NOS: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
  470
                                                                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                   301
                                       421
                                                                                                                    361
                                                                                                                                                           351
                                                                                                                                                                                                                                                                              241 aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgcccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     سر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gaatggtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtgga 960
                                                                                                                                                                                                                                                                                                                 gcagtagtcgccgtgaacgttctttttcgcaacgggtt-----tgccgccccg 290
                                                                                                                                                                                                                                                                                                                                                                                                gatgtcgtgtactggctcc---gcctttttcccgagggtgggggggagaaccgtatataagt 242
                                                                                                                                                                                                                                                                                                                                                                                                                                          actaggggttcctgcggccgcccagggaatgtttgttcttaaataccatccagggaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                            actaggggttcctgcggcgcgcgcgtggtggcgcgggggtaaa-----ctggggaaagt 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tttggtcgcccggcctcagtgagcgagcgagcgcgcagaggggagtggccaactccatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttggtcgcccggcctcagtgagcgagcgcgcgcgcagagaggggagtggccaactccatc 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cagctgcgcgctcgctcactgaggccgccgggcaaagcccgggcgtcggcgacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cagctgcgcgctcgctcactgaggccgccggggcaaagcccggggcgtcgggcgacc
                                                                                                                                                                                                                                    cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 529
                                                                                                                                     tettaaataceatetaetgaeaetgaeatecaetttttetttttetecaeaggtatega-
                                                                                                                                                                                                   aggcaggtaagtgccgtgtgtggttcccgcggggcctggcctctttacgggttatggccct
                                                                                                                                                                                                                                                                                                                                                           ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt
                                     tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt
                                                          tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt 469
                                                                                                                    tgcgtgccttgaattactgacactgacatccactttttctttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      870; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6200560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches 118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 736.2; DB 4;
Pred. No. 4.4e-222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                409
                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4;
```

```
Дβ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                  , OTHER INFORMATION: Description of Artificial Sequence: 05\text{-}09\text{-}364\text{-}862\text{-}13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-364-862-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
 VQ
                                    밁
                                                                    Qy
                                                                                                                                                                                                                                                                                                 LUCIWARE: PatentIn Ver. 2.0 SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 13, Application US/09364862 Patent No. 6221349
                                                                                                                             Best Local Similarity
                                                                                                                                              Query Match
                                                                                                              Matches 870;
                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: ADENO-ASSOCIATED VECTORS FOR EXPRESSION OF FACTOR VIII TITLE OF INVENTION: BY TARGET TITLE OF INVENTION: CELLS FILE REFERENCE: AVIGEN-03743 CURRENT APPLICATION NUMBER: US/09/364,862 CURRENT FILING DATE: 1999-07-30 EARLIER APPLICATION NUMBER: 60/125,974
                                                                                                                                                                                                                                                                                                                                                                                    EARLIER APPLICATION NUMBER: 60/125,974
EARLIER FILING DATE: 1999-03-24
EARLIER APPLICATION NUMBER: 60/104,994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                                                                                                EARLIER FILING DATE: 1998-10-20 NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                           ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                           LENGTH: 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541 gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    961 tctcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta 1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661 aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
73 tttggtcgcccggcctcagtgagcgagcgagcgcagagaggggagtggccaactccatc 132
                                                       13 cagctgcgcgctcgctcgctcactgaggccgccgggcaaagcccgggcgtcgggcgacc 72
                                      1 cagctgcgcgctcgctcactgaggccgcccgggcaaagcccgggcgtcgggcgacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     totcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                              Conservative
                                                                                                                             73.6%;
                                                                                                              ,,
                                                                                                              Score 736.2; DB 4;
Pred. No. 4.4e-222;
0; Mismatches 118;
                                                                                                                                                  DB 4;
                                                                                                                  Indels
                                                                                                                                                  Length
                                                                                                                                                                                                                          synthetic
                                                                                                                  23;
                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                             60
                                                                                                                    4.
```

```
RESULT 5
US-08-882-083-1
                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                             Sequence 1, Application US/08882083 Patent No. 5869292
                                                            GENERAL INFORMATION:
      APPLICANT: VOORBERG, Johannes J.
TITLE OF INVENTION: HYBRID PROTEINS
NUMBER OF SEQUENCES: 17
CORRESPONDENCE
                                                                                                                                                                                                            950
                                                                                                                                                                              961
                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                        830
                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                        tctcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                     gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                                                                                                                                                                                                    tctcatgtggacctggtaaaagacttgaattcaggcctcattggagcccta 1011
                                                                                                                                                                                                                                                    gtcctgaaagagaatggtccaatggcctctgacccactgtgccttacctactcatatctt
                                                                                                                                                                                                                                                                                                   gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttcaacaccttcagtcgtgtacaaaaagactttgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                 gctgttggtgtatcctactggaaagcttctgagggagctgaatatgatgatcagaccagt
                                                                                                                                                                                                                                                                                                                                                                                                                                 gtttatgatacagtggtcattacacttaagaacatggcttcccatcctgtcagtcttcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aacatcgctaagccaaggccaccctggatgggtctgctaggtcctaccatccaggctgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcacggatcaccttttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaaaatcttttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tccaccatgcaaatagagctctccacctgcttctttctgtgcctttttgcgattctgcttt 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cggcaggtaagtgccagggaatgtttgttcttaaataccatcgctccagggaatgtttgt 350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aaagaagtatattagagcgagtctttctgcacacagatcacctttccgggtgccgcccct 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcagtagtcgccgtgaacgttctttttcgcaacgggtt-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           actaggggttcctgcggccgccagggaatgtttgttcttaaataccatccagggaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             actaggggttcctgcggccgcacgcgtggtggcgcggggtaaa----ctgggaaagt 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agtgccaccagaagatactacctgggtgcagtggaactgtcatgggactatatgcaaagt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tccaccatgcaaatagagctctccacctgcttctttctgtgccttttgcgattctgcttt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgcgtgccttgaattactgacactgacatccactttttctttttctccacaggtatcgat 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tettaaataeeatetaeetgaeaetgaeateeaetttttettttteteeeaeaggtatega- 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aggcaggtaagtgccgtgtgtggttcccgcgggcctggcctctttacgggttatggccct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttgttcttaaataccatccagggaatgtttgttcttaaataccatctacagttattggtt 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatgtcgtgtactggctcc---gcctttttcccgagggtgggggggagaaccgtatataagt
ADDRESS
                            WITH
                          MODIFIED ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----tgccgccccg 290
                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                                               769
                                                                                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
```

```
밁
                            Qy
                                                                                             Q
                                                                                                                                Вb
                                                                                                                                                            δÃ
                                                                                                                                                                                                                        ρ
                                                                밁
                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                           DЪ
                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-882-083-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 33,715
REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEBHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
LENGTH: 5035 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 0
FILING DATE: 13-NOV-1995
ATTORNEY/AGENT INFORMATION:
NAME: ISACSON, John P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 514
PRIOR APPLICATION DATA:
    427
                                                                                                                                307
                                                                                                                                                               883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                             247
                                                                                                                                                                                                                                                             187
                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (2-
TELEFAX: 904136
                                                                                                                                                                                                                                                                                                                                                                                                                      448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Foley & Lardner STREET: 3000 K Street, N.W CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: ISACSON, John P
REGISTRATION NUMBER: :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE:
COMPUTER: IE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     7
                                                                                                                                                                                                                                                                                                                                                                                                     gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact 507
TGAATATGATGATCAGACCAGTCAAAGGGAGAAAGAAGATGATAAAGTCTTCCCTGGTGG
              tgaatatgatgatcagaccagtcaaaggggagaagaagatgataaagtcttccctggtgg
                                                             TTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGC
                                                                              ttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttctgagggagc
                                                                                                                              AGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGC
                                                                                                                                               aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc
                                                                                                                                                                                            AGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCT
                                                                                                                                                                                                              agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct
                                                                                                                                                                                                                                                         TAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGT
                                                                                                                                                                                                                                                                            tagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaaagactctgtttgt
                                                                                                                                                                                                                                                                                                                       GTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCC
                                                                                                                                                                                                                                                                                                                                                     gtcatgggactatatgcaaagtgatctcggtgagctgcctgtggacgcaagatttcctcc
                                                                                                                                                                                                                                                                                                                                                                                      GTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                    600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3000 K Street, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
35..5017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59.2%;
97.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/882,083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08/558,107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 592.2; DB 2;
Pred. No. 8e-177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
486
                               867
                                                               426
                                                                                              807
```

306

246

186 567 66

```
RESULT 6
US-08-558-107-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ.
                                                                                        QΥ
                                                                                                                          В
                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                          ; NAME/KEY:
; LOCATION:
US-08-558-107-1
                                                             ₽
   B
                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/08558107 Patent No. 5910481
                                                                                                                                                                                  Matches 600;
                                                                                                                                                                                                    Best
                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 5035 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 30 TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08 FILING DATE: 13-NOV-1995 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   547 GTGCCTTACCTACTCATATCTTCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCT 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              487 AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       607 CATTGGAGCCCTA 619
                                                                                                                                       448 gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX:
                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                      TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 33,715
                                                             67 GTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACT 126
                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                 TELEX:
                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                        cattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtgccttacctactcatatctttctcatgtggacctggtaaaagacttgaattcaggcct 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISACSON, John P.
                                                                                                                                                                                                                                                                                                                                                                                                                 904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VOORBERG, Johannes J.
                                                                                                                                                                                                                                                                                                                                                                                                                             (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Floppy disk
                                                                                                                                                                                                59.2%; Score 592.2; DB 2; Length 5035; 97.9%; Pred. No. 8e-177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/558,107
                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30472/212
                                                                                                                                                                                     Mismatches
                                                                                                                                                                                       13;
                                                                                                                                                                                       Indels
                                                                                                                                                                                       0;
                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546
```

0;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-243-539-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/09243539 Patent No. 6130203
 IELEX: 904136
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 5035 harr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/243,539
                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                     APPLICATION NUMBER: US 08/558,107 FILING DATE: 13-NOV-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               307 AGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGC 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247 AGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCT
                                                                                                           TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    868 aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             988 cattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         607 CATTGGAGCCCTA 619
                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                           REGISTRATION NUMBER: 33,715
REFERENCE/DOCKET NUMBER: 30
                                                                                                                                                                                                                                                       FILING DATE:
                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGAATATGATGATCAGACCAGTCAAAGGGAGAAAGAAGATGATAAAGTCTTCCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgaatatgatgatcagaccagtcaaagggagaaagatgatgataaagtcttccctggtgg 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                                                                                                                                                                                                                      20007-5109
                                                                                                                                                           ISACSON, John P
                                                                                                                                                                                                                                                                                                                                                                                                                 D.C.
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: Foley & Lardner 3000 K Street, N.W., Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VOORBERG, Johannes
                                                                               : (202)672-5300
(202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                 30472/212
                                                                                                                                                                                                                                                                                                          Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              546
```

```
US-08-366-851A-1
                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-243-539-1
                                                                                                                                                                                        Sequence 1, Application US/08366851A Patent No. 5681746
                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                   APPLICANT: Chang, Steven
TITLE OF INVENTION: Retroviral Delivery of Full Length Factor VIII
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                               APPLICANT: Bodner, Mordechaı
APPLICANT: De Polo, Nicolas J.
                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                     988 cattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                             928 gtgccttacctactcatatcttctcatgtggacctggtaaaagacttgaattcaggcct 987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                        607
                             STREET:
                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                  487
                                                                                                                                                                                                                                                                                                                                                                                                                                                868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127 GTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGGACGCAAGATTTCCTCC 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       508 gtcatgggactatatgcaaagtgatctcggtgagctgcctgtggacgcaagatttcctcc 567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    448 gtgccttttgcgattctgctttagtgccaccagaagatactacctgggtgcagtggaact 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67 GTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACT 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATTGGAGCCCTA 619
                                                                                                                                                                                                                                                                                                                                              GTGCCTTACCTACTCATATCTTCTCATGTGGACCTGGTAAAAGACTTGAATTCAGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                          AAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAATGGCCTCTGACCCACT
                                                                                                                                                                                                                                                                                                                                                                                                                          aagccatacatatgtctggcaggtcctgaaagagaatggtccaatggcctctgacccact 927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAATATGATGATCAGACCAGTCAAAGGGAAAAGAAGATGATAAAGTCTTCCCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgaatatgatgatcagaccagtcaaagggagaaagatgataaagtcttccctggtgg 867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ttcccatcctgtcagtcttcatgctgttggtgtatcctactggaaagcttctgagggagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGC 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aggtcctaccatccaggctgaggtttatgatacagtggtcattacacttaagaacatggc 747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agaattcacggatcaccttttcaacatcgctaagccaaggccaccctggatgggtctgct 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tagagtgccaaaatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgt 627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGAAAGCTTCTGAGGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGAATTCACGGATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCT
             San Diego
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
California
                          E: Viagene, Ir
11055 Roselle
                                                                                                                     Hsu, David Chi-Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
35..5017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59.2%;
97.9%;
                                            Inc
                            Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 592.2; DB 3; Length 5035; Pred. No. 8e-177; 0; Mismatches 13; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    426
                                                                                                                                                                                                                                                                                                                                             606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
γQ
                                         Дb
                                                                       QУ
                                                                                                             밁
                                                                                                                                            Ş
                                                                                                                                                                                  В
                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                              δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-366-851A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (619) 452-2616
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 34,561
REFERENCE/DOCKET NUMBER: 930049.438
TELECOMMUNICATION INFORMATION:
912 tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                546 AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                      852 aagtetteeetggtggaageeatacatatgtetggeaggteetgaaaggaatggteeaa 911
                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Rel CURRENT APPLICATION DATA:
                                                                                                                          672 cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                       426 CACTTAAGAACATGGCTTCCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                                                                             732 cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgttatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                432 ccacctgcttcttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Chambers, Dani
REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/366,851A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 92121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                         acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               t999tgcagtggaactgtcatgggactatatgcaaagtgatctcggttgagctgcctgtgg 551
                                                                                                                                                                                                                                                CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                                                                                                                                                                                                                           ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleic acid
EDNESS: both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8967 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110..7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IBM PC compatible SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (619) 452-1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Daniel M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59.1%;
96.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 590.6; DB 1; Length Pred. No. 3.6e-176; O: Mismatches 24; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>,,</u>
```

Gaps

0

185 491

605

485

```
RESULT 9
US-07-864-004B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
밁
                            δÃ
                                                                                                                                        US-07-864-004B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3, Appli
Patent No. 536477
                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 404-815-6555 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S. TITLE OF INVENTION: Hybrid Hun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                        MOLECULE NO TENSE: NO
                                                                                                                                                                                                                                                                                                                             ORIGINAL SOURCE:
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           972
                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                             FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          606 TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG 665
107
                372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                  LOCATION: 1 . . . OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                 APPLICATION NUMBER: US/07/864,004B FILING DATE: 07 APRIL 1992 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Atlanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                    NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTTGAATTCAGGCCTCATTGGAGCCCTA 694
ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
                                                              604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30309
                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                       : 9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/07864004B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1100 Peachtree Street
                                                              Conservative
                                                                                                                                                                                     misc_feature (Domain Structure)
1 . . . 2277
                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                            Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                                                                               Ö
                                                                                                                                                                                                                                                                                                                                                           N-terminal
                                                                                                                                                                                                                                                                                                                Liver
                                                                                                                                                                                                                                                                                                                                                                                                             CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hybrid Human/Porcine Factor VIII
                                                                           58.9%;
                                                                                                                                                     /note= "Equivalent to the A1-A2
domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Release #1.0, Version #1.25
                                                                                                                                                                                                                                                   /note= "Equivalent to the A3-C1-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31,284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMU106
                                                            Score 589; DB 1;
Pred. No. 1.1e-175;
0; Mismatches 25;
                                                                                          Length 9009;
                                                                Indels
                                                                0;
                                                              Gaps
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                          US-08-251-937A-3
                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/08251937A Patent No. 5583209
                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                   CLASSIFICATION: 435
PRIOR APPLICATION UNDER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Hybrid Human/Porcine Factor VIII NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                      APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S.
                                                                                                                                                                                                     COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                          STREET: 1100 P
CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347 AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       587 AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  852 aagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggteeaa 911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                        APPLICATION NUMBER: FILING DATE: 31-MA
                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                   ADDRESSEE:
REGISTRATION NUMBER: 29. REFERENCE/DOCKET NUMBER:
                          NAME: Pratt,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac 671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                    30309
                                                                                                                                                                                                                               Georgia
Y: US
                                                                                                                                                                                                                                                                     E: Kilpatrick & Cody
1100 Peachtree Street
                                                                                                        31-MAY-1994
                        John S.
                                                                                                                      US/08/251,937A
  EMU106DIV
                                                                                                                                                   Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           646
```

```
밁
                                                                                      QΥ
                                                                                                                      В
                                                                                                                                                δã
                                                                                                                                                                              Вb
                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-251-937A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 604; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: linear
MOLECULE TYPE: CDNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: 3: SEQUENCE CHARACTERISTICS:
587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                        527
                                                                                                                                                   792
                                                                                                                                                                              467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-815-6367
                                                                                                                                                                                                           732
                                                                                                                                                                                                                                        407
                                                                                                                                                                                                                                                                    672
                                                                                                                                                                                                                                                                                                           612 aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac 671
                                                                                                                                                                                                                                                                                                                                                 432 ccacctgcttctttctgtgccttttgcgattctgcttttagtgccaccagaagatactacc 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          107 ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature (Domain Structure)
LOCATION: 1 . . 2277
OTHER INFORMATION: /note= "Equivalent to the A1-A2
OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature (Domain Structure)
LOCATION: 5001 7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                        cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                 cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                  CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTTGGTGTATCCTACTGGA 526
                                                                                                                                                                                                                                    CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA 466
                                                                                                                                                                                                                                                                                                                                                                                                           TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG 286
                                                                                                                                                                                                                                                                                                                                                                                                                          tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   404-815-6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 58.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "Equivalent to the A3-C1-C2
domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 589; DB 1; Length 9009; Pred. No. 1.1e-175; 0; Mismatches 25; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                   586
                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                                            406
```

밁 Qy

Matches 604; Conservative Best Local Similarity

Query Match

58.9%; 96.0%;

Score 589; DB 1; Pred. No. 1.1e-175;

Length 9009;

Indels

0,

Gaps

0

0;

Mismatches

```
OTHER INFORMATION: 0.2277
OTHER INFORMATION: VUS-08-212-133A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-212-133A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Applic Patent No. 5663060
                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 404-572-6555 INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                HYPOTHETICAL: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: PADST, PATTOR L.
REGISTRATION NUMBER: 31,284
REFERENCE/DOCKET NUMBER: EM
                                                                                                   FEATURE:
                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                 ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 9009 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-572-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               972 acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                               NAME/REY: misc_feature (Domain Structure)
LOCATION: 5125...7053
OTHER INFORMATION: /note= "Equivalent to OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE: 404-5,2-6555
                                                                               NAME/KEY:
                                                                                                                   OTHER INFORMATION:
                                                                                                                                 TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 07/864,004 FILING DATE: 07-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/08/2
FILING DATE: March 11, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 707 ACTIGAATICAGGCCTCATIGGAGCCCTA 735
                                                                                                                                                                                                                                                                                   ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/08212133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Georgia
                                                                                                                                                                                                                                                                                                                                                                                                               9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100 Peachtree Street
                                                                                                                                                                                                                                                                                   Homo sapien
                                                                                    Domain
                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                 NO
                                                                                                                                                                                                                                                                  Liver
                                                                                                                                                                                                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hybrid Human/Animal Factor VIII
                                    /note=
VIII."
                                                                                                                                                                                 /note= "Equivalent to the
domain"
                                                                                                                   /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/212,133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMU/76677
                                                                                                                 "Equivalent to the
                                                 "cDNA encoding
                                                   human
                                                                                                                   A1-A2 domain."
```

0;

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                           US-08-474-503-1
                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/08474503
Patent No. 5744446
GENERAL INFORMATION:
APPLICATION NUMBER: US/08/474
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: PRATT, JOhn S.
REGISSTRATION NUMBER: 29,476
REFERENCE/DOCKET NUMBER: EMU1
                                                                                                                                                          COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                   CURRENT APPLICATION DATA:
                                                                                                                                                                                                                 STREET: 1100 P
CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          107
                                                                                                                                                                                                                                                                                                                                                                                                                                  707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          732
                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTGAATTCAGGCCTCATTGGAGCCCTA 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                 acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acgcaagatttcctctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                       30309
                                                                                                                                                                                                     Georgia
7: US
                                                                                                                                                                                                                                              1100 Peachtree Street,
                                                                                                                                                                                                                                                                                                                    Emory University
                                                                                                                                                                                                                                                            Kilpatrick & Cody
                                                                                                                                                           Floppy disk
                                                                                                                                                                                                                                                                                                    Hybrid Human/Animal Factor VIII
                                                                                       US/08/474,503
  EMU106CIP(3)
                                                                                                                                                                                                                                                Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         671
```

```
Qy
                                                                                                                                                   Qy
                                                                                                                                                                               밁
                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                    рь
                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
Ş
                         밁
                                                                           Вþ
                                                                                                  Q
                                                                                                                            밁
                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-474-503-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGINAL SOURCE:
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: 404-815-6500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                              432
                                                                                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                      167
                                                                                                                                                                                                                                                                                                                                                                                                                                                     372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                              467
                                                                                                                                                                                407
                                                                                                                                                                                                                                 347
                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: /
 912 tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature (Domain Structure) LOCATION: 5125 7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 9009 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 404-815-6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                ccacctgcttctttctgtgccttttgcgattctgcttttagtgccaccagaagatactacc
                          AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                       aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                           CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA
                                                                                                                                           cacttaagaacatggcttcccatcctgtcagtcttcatgctgtttggtgtatcctactgga
                                                                                                                                                                                CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                            cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta
                                                                                                                                                                                                                                 AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                              aaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                    CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Domain
1..2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature (Domain 1 . . . 2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58.9%;
96.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note-
VIII."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "Equivalent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 589; DB 1;
Pred. No. 1.1e-175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Equivalent to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "cDNA encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Structure)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A3-C1-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A1-A2 domain."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               491
   971
                             646
                                                     911
                                                                              586
                                                                                                                                                                                   466
                                                                                                                                                                                                                                  406
                                                                                                                                                                                                                                                            671
                                                                                                                                                                                                                                                                                     346
                                                                                                                                                                                                                                                                                                             611
                                                                                                                                                                                                                                                                                                                                      286
                                                                                                                                                                                                                                                                                                                                                                                       226
```

```
RESULT 13
US-08-670-707A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/08670707A Patent No. 5859204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 303/499-8089
NFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 75
TELECOMMUNICATION INFORMATION: TELEPHONE: 303/499-8080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 07/864,004 FILING DATE: 07-APR-1992 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 11-MAR-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PCT/US94/13200
FILING DATE: 15-NOV-1994
                                   FEATURE:
                                                                                                                                                                                                                                                             HYPOTHETICAL:
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Lollar, TITLE OF INVENTION:
                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                              ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                 EATURE:
                                              NAME/KEY: misc_feature LOCATION: 1..2277
OTHER INFORMATION: /prc
OTHER INFORMATION: /not
                                                                                                                         NAME/KEY: misc_feature LOCATION: 5125..7053 OTHER INFORMATION: /prooffer INFORMATION: /not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
CITY: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       707 ACTTGAATTCAGGCCTCATTGGAGCCCTA 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       972 acttgaattcaggcctcattggagcccta
                                                                                                                                                                                                             TISSUE TYPE:
     LOCATION:
                    NAME/KEY:
                                                                                               NAME/KEY:
                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Greenlee, Lorance L. REGISTRATION NUMBER: 27,894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                               ORGANISM:
                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 20 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    80303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Boulder
                                                                                                                                                                                                                                                                                                                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Colorado
                                                                                                                                                                                                                                                                                                                                                         9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5370 Manhattan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                         not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PatentIn Release #1.0, Version
   misc_feature
1..2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Greenlee, Winner and Sullivan, 70 Manhattan Circle Suite 201
                                                                                                                                                                                                                                                                              Ö
                                                                                                                                                                                                                                                                                           cDNA to mRNA
                                                                                                                                                                                                               Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-JUN-1996
                                                                                                                                                                                                                                                                                                                           double
                                                                                                                             /product= "Domain Structure"
/note= "Equivalent to the
                                                  /note=
                                                               /product= "Domain Structure"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 08/212,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/08/670,707A
                                                                                                                                                                                                                                                                                                                                                                                                                                                        75-95F
                                                "Equivalent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1000
                                                  the
                                                  A1-A2 domain"
                                                                                                                              A3-C1-C2
                                                                                                                                domain'
                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                         US-09-037-601-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-670-707A-1
                                                                                                                                                                                                                         Sequence 1, Application US/09037601 Patent No. 6180371 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compati
                                                                                                                                                                                           APPLICANT: Lollar, John S. TITLE OF INVENTION: Hybrid Human/Animal Factor VIII
                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                            CITY: Boulder
STATE: Colorad
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                          972
                                                                                                                                                                                                                                                                                                                                                                                                          647
                                                                                                                                                                                                                                                                                                                                                                                                                                        912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                                                          707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167 CCACCTGCTTCTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       432 ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Sim hes 604;
   OPERATING SYSTEM:
                                                                                                                             STREET:
                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                         acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggtccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                anaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaaggccac
                                                                                                                                                                                                                                                                                                                                                                                                        TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                         tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                          ACTTGAATTCAGGCCTCATTGGAGCCCTA 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGCAAGATTTCCTCCTAGAGTGCCAAAATCTTTTCCATTCAACACCTCAGTCGTGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgctgtgg
                                                                 80303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                               Colorado
                                                                                                                           5370 Manhattan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                             Greenlee, Winner and Sullivan, 70 Manhattan Circle Suite 201
PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58.9%;
96.0%;
                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product= "Domain"
/note= "cDNA encoding human factorVIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 589; DB 2;
Pred. No. 1.1e-175;
0; Mismatches 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 9009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

586 851 526 791 466

706

346

611 286 551 226 491

731 406 671 166

```
; OTHER INFORMATION: ; OTHER INFORMATION: US-09-037-601-1
                                                                                                                                                    Š
                                                                                                                                                                                          밁
                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                           Ωy
                   γ
                                                     밁
                                                                                    Qy
                                                                                                                         밁
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                 Matches 604;
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Ferber, Donna M.
REGISTRATION NUMBER: 33,878
REFERENCE/DOCKET NUMBER: 75-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/499-8080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA: application number: US/09/037,601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                            432
612 aaaagactctgtttgtagaattcacggatcaccttttcaaccatcgctaagccaaggccac
                                                     287
                                                                                                                                                        492
                                                                                                                                                                                                                                                                                372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                          167
                                                                                                                                                                                                                                                              107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: WO POFILING DATE: 15-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature LOCATION: 1..2277
OTHER INFORMATION: /prc
OTHER INFORMATION: /not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION: /product= "Domain Structure"
OTHER INFORMATION: /note= "Equivalent to the A3-C1-C2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature LOCATION: 5125..7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM:
                                                                                                                                                                                                          ccacctgcttctttctgtgccttttgcgattctgctttagtgccaccagaagatactacc 491
                                                                                                                                        tgggtgcagtggaactgtcatgggactatatgcaaagtgatctcggtgagctgcctgtgg 551
                                                                                                                                                                                          CCACCTGCTTCTTTCTGTGCCTTTTGCGATTCTGCTTTAGTGCCACCAGAAGATACTACC
                                                                                                                                                                                                                                                              ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
                                                    acgcaagatttcctcctagagtgccaaaatcttttccattcaacacctcagtcgtgtaca 611
                                                                                                                         TGGGTGCAGTGGAACTGTCATGGGACTATATGCAAAAGTGATCTCGGTGAGCTGCCTGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303/499-8089
                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
1..2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-JUN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA to mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        double
                                                                                                                                                                                                                                                                                                                                                   58.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product= "Domain Structure"
/note= "Equivalent to the Al-A2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 08/212,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product= "Domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US 07/864,004
                                                                                                                                                                                                                                                                                                                                                                                                                                   /note= "cDNA encoding human factorVIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO PCT/US94/13200
                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                   Score 589; DB 4;
Pred. No. 1.1e-175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75-95F
                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                  25;
                                                                                                                                                                                                                                                                                                                                                                 Length 9009;
                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                  Gaps
                                                       346
                                                                                                                                                                                              226
                                                                                                                         286
                                                                                                                                                                                                                                                                                                                                  0,
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 15
PCT-US93-03275-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application PC/TUS9303275 GENERAL INFORMATION:
                                                                                                                                                         TELEFAX: 404-815-6555 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 07/864004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
             FRAGMENT TYPE: N-terminal ORIGINAL SOURCE:
                                         MOLECULE TYPE:
HYPOTHETICAL: 1
ANTI-SENSE: NO
                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 9009 base pair
                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  972 acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           707 ACTTGAATTCAGGCCTCATTGGAGCCCTA 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               347 AAAAGACTCTGTTTGTAGAATTCACGGTTCACCTTTTCAACATCGCTAAGCCAAGGCCAC 406
                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
                                                                                                                                                                                                                  NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,284
REFERENCE/DOCKET NUMBER: EM
                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Atlanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
 ORGANISM:
                                                                                     TOPOLOGY:
                                                                                                 STRANDEDNESS:
                                                                                                                                                                                     TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggteeaa 911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGTCTTCCCTGGTGGAAGCCATACATATGTCTGGCAGGTCCTGAAAGAGAATGGTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30309-4530
                                                                                                               NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Georgia
                                                                                                               9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1100 Peachtree Street, Suite 2800
Homo sapien
                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kilpatrick & Cody
                                                         ö
                                                                                                 single
                                                                                                                                                                                                                                                                                                                                       19930407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hybrid Human/Porcine Factor VIII
                                                                                                                                                                                                                                                                                                                                                      PCT/US93/03275
                                                                                                                                                            ω
                                                                                                                                                                                                                      EMU 106PCT
                                                                                                                                                                                                                                                                                                                                                                                     #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 646
```

```
Ωy
                                             Вb
                                                                Qy
                                                                                        Ъ
                                                                                                            QУ
 밁
                                                                                                                                     망
                                                                                                                                                        γQ
                                                                                                                                                                                 Ъ
                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
NAME/KEY: misc_feature
LOCATION: 1.2277
OTHER INFORMATION: /note= "Domain Structure:
OTHER INFORMATION: Equivalent to the Al-A2 domain"
PCT-US93-03275-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 58.9%;
Best Local Similarity 96.0%;
Matches 604; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                         347
 707
                                             647
                                                                   912
                                                                                          587
                                                                                                               852
                                                                                                                                      527
                                                                                                                                                          792
                                                                                                                                                                                 467
                                                                                                                                                                                                                             407
                                                                                                                                                                                                                                                                                                                                                                                                           672
                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                              552
                                                                                                                                                                                                                                                                                                                                                                                         492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     372 actgacatccactttttctttttctccacaggtatcgatccaccatgcaaatagagctct 431
                                                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                                                                                   227
                                                                                                                                                                                                                                                                                                                                                                                                                                                        107 ATTAACCTTTTGCTTCTCCAGTTGAACATTTGTAGCAATAAGTCATGCAAATAGAGCTCT 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: 5001..7053
OTHER INFORMATION: /note= "Domain Structure:
OTHER INFORMATION: Equivalent to the A3-C1-C2 domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE TYPE: Liver
                                                                                     acttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                          cacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctactgga 791
                                                                                                                                                                                                                                         cctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtcatta 731
                                                                                                                                                                                                                                                                                                                                                               ACTTGAATTCAGGCCTCATTGGAGCCCTA
                                                     tggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggtaaaag 971
                                                                                                                                                                              CACTTAAGAACATGGCTTCCCATCCTGTCAGTCTTCATGCTGTTGGTGTATCCTACTGGA 526
                                            TGGCCTCTGACCCACTGTGCCTTACCTACTCATATCTTTCTCATGTGGACCTGGTAAAAG 706
                                                                                                                                                                                                                            CCTGGATGGGTCTGCTAGGTCCTACCATCCAGGCTGAGGTTTATGATACAGTGGTCATTA 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 589; DB 5;
Pred. No. 1.1e-175;
0; Mismatches 25;
735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

Search completed: January 17, Job time: 12370 sec

2002, 16:27:40

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 January 17, 2002, 14:58:51; Search time 3755.78 Seconds (without alignments) 2861.131 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-740-211-14_COPY_1_1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11351937 segs, 5372889281 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cgcccctgcaggcagctgcg.....caggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                     em_estpl:*
em_estba:*
                                                                                                                                                                                                                                                                                                 em_estfun:*
em_esthum:*
                                                                                                                                                                                          em_htc:*
                                                                                                                                                                                                                                                                   em_estom:*
                                                                                                                                                                                                                                                                                    em_estin:*
                em_gss_pro:*
em_gss_rod:*
em_gss_vrt:*
                                                                                                                                        gb_est1:*
gb_est2:*
gb_htc:*
                                                                                                                                                                                                       em_estov:*
                                                                                                                                                                                                                      em_estro:*
                                                                            em_gss_hum:*
em_gss_inv:*
em_gss_other:*
                                                             em_gss_pln:*
                                                                                                             em_gss_fun:*
                                                                                                                         gb_gss:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

		ဂ											(כ			:	7	Resul
12	11	C	,	٥	œ	7	ے ا	'n	ഗ	. #	^	u	, ,	S	-		:	ō i	-
95.8	95.8	95. a	,	97	97.8	98.2		9	98.6		98.6	98.0	2 1	98.8	343.4	ر د د		Score	
9.6	9.6	9.0	0 !	9.7	9.8	9.0												Match 1	Zuet y
918	878	120	ב	632	669	1000	1000	3739	/83	3	658	027	200	456		05/		Match Length DB	
10	11	5	5	11	I		5	12	1	1	Ξ		5	C	,		1		
AL556703	BE912296	1000000	85559844	BG862595	BF15046/	111111111111111111111111111111111111111	STOOKEOO	AK014835	DG 7 / 1#4	00077143	BG923886	110000000000000000000000000000000000000	556753	AABI/854	1000	BG477974		ID	
ALCCO OC ALCCO	50595400 00400040	0 m 0 1 3 3 6 6 1 6 6 6 0 1 3	AA865338 ogskalu.s	BC002000 00470070	BC060505 600795978	BF150467 HV86b07.V	AI225600 uj06c05.y			BG977142 602846744		BC023886 602824585	AI526/53 UJ42eu3.y	Property of the second of the	33817854 III-R-A0-a	BG4//9/4 002022000	ממסטנים ביינים ב	Description	J

	Ω
2276 2276 2276 2276 2276 2376 2376 2376	13 14 15 16 17 17 18 19 19 20 20 22 23
87.6 86.6 86.6 86.6 86.6 86.6 86.6 86.8 8 86.8 8 86.8 8 86.8 8 86.8 8 8 8	94.2 91.6 89.2 89.2 88.2
© ® © ® © ® © © © © © © © © © © © © © ©	QQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ
657 472 472 530 530 667 691 796 893 643 843 843 6475 670 921 684 921 684	634 477 576 913 954 725 936 695 839 839 836 836
10 10 10 10 10 11 11 11 11 11 11 11 11 1	10 11 11 11 11 11 11 11 11 11 11 11
100000000000000000000000000000000000000	V65326 A46183 E91454 E91601 E91705 F1383 F1383 F1383 F1383 F13715 E9173 E9173 E9173 E9173 E9173
B1428548 IRSbelo.y B14512 602813258 B6304512 602813260 A1195667 u152c06.y B2285283 601098271 B6975622 602845326 B6783789 602044704 BF144018 601791275 BF128434 f132905.y BF122699 6017612255 BF122699 6017612691 B6258672 602587688 A11956373 uk01h06.y B6718986 601782710 BF136677 f155d10.y BF136474 602045231 BF56677 f155d10.y BF384424 602045231 BF664025 265694 MA	53260 51838 16015 72588 36574 36574 3771524 446655

ALIGNMENTS

FEATURES SOUICE		AUTHORS TITLE JOURNAL COMMENT	ORGANISM	ACCESSION VERSION KEYWORDS SOURCE	RESULT 1 BG477974 LOCUS DEFINITION
	Tissue Procurement: ATCC/DCTD/DTP Tissue Procurement: ATCC/DCTD/DTP CDNA Library Preparation: Ling Hong/Rubin Laboratory cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) cDNA Sequencing by: Incyte Genomics, Inc. DNA Sequencing by: Incyte Genomics information can be clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:	NATIONAL INSTITUTES Of Health, Mammalian Gene Collection (MGC) National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished (1999) Contact: Robert Strausberg, Ph.D. Fraail: crashbe-remail.pih.gov	Homo Sapiens Enkaryota; Metazoa; Chordata; Craniata; Vertebrata; Enteleostomi; Mammalia; Entheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 954) 1 (bases 1 to 954)	BG477974 BG477974.1 GI:13410253 EST. human	BG477974 954 bp mRNA EST 21-MAR-2001 602522966F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4641352 5', mRNA sequence.

```
REFERENCE
                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                    AA817854/c
                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          588 CTCATTGGAGCCCTA 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  986 ctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     528 TGCCATTACCTACTCATATCTTTCTCATGTGGACCTGGCTACAAGACTTGAATCTCAGGA 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         874 tacat-atgtctggcaggtcctg---aaagagaatggtccaatggcctctgacccactg- 928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108 AGATGCACCGAGATGCGCGTGCGCAGAAAGCGTCCCGGGGATTTCCTCCTAGAGTGCCAA 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       госат
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -tgccttacctactcatatctttctcatgtggacctgg-taaaagacttgaat-tcaggc 985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TACCTCATGTCTGGCAGGTCCTGCAAAGAGACATGGTCCACCTGGCCTCTGACCCACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tgatcagaccagtcaaa--gggagaaagaagatgata-aagtcttccctggtggaagcca 873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGATCAGACCAGTCAAACGGGAGAACAGAAGATGATACAAGTCTTCCCTGGTGGAAGCCA 467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCAGGCTGAGGTTTATGATACAGTGGTCATTACACTTAAGAACATGGCTTCCCATCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcagtcttcatgctgttggtgtatcctactggaaagcttctga--gggagctgaatatga 816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tccaggctgaggtttatgatacagtggtcattacacttaagaacatggcttcccatcctg 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atcaccttttcaacatcgctaagccaaggccaccctggatgggtctgctaggtcctacca 698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aatcttttccattcaacacctcagtcgtgtacaaaaagactctgtttgtagaattcaccg 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCACCTTTTCAACATCGCTAAGCCAAGGCCACCCTGGATGGGTCTGCTAGGTCCTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATCTTTTCCATTCAACACCTCAGTCGTGTACAAAAAGACTCTGTTTGTAGAATTCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  atatgcaaagtgatctcggtgagctgcctgtggacgcaagatttcctcctagagtgccaa 578
Genome Res. 6 (9), 791-806 (1996) 97044477
                                                                                                                                                                                                                                                                                      AA817854

456 bp mRNA

UI-R-AO-ae-g-10-0-UI.S1 UI-R-AO Rattus norvegicus cDNA clone

UI-R-AO-ae-g-10-0-UI 3' similar to gb|L33869|RATCERU Rat norvegicus
                                         discovery
                                                Normalization and subtraction: two approaches to facilitate
                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                     Bonaldo, M.F.,
                                                                                                                                        Rattus
                                                                                                                                             Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                   Rattus norvegicus
                                                                                                                                                                                                                                                                       AA817854
AA817854.1 GI:4198380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                             (bases 1 to 456)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: skin; Vector: pOTB7; Site_1: xhoI; Site_2: ECORI; cDNA made by oligo-dT priming. Directionally cloned into EcoRI/XhoI sites using the following 5' adaptor: GGCACGAG(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-CDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies)." a 276 c 232 g 212 t l others
                                                                                  Lennon, G. and Soares, M.B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 323.4; DB Pred. No. 1.5e-83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 11; Length 954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
```

Qγ 밁

δÃ В Ω 밁 Ş 밁 Š Db δõ В Ş Вb Q

밁

```
LOCUS
                                    AI526753
                                                             RESULT
                                                                                                                                                                              Ş
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                    967 aaaagacttgaattcaggcctcattggagc 996
                                                                                                                                                                                                                                                                                                                                                                               847
                                                                                                                                                                                                                                                                                                                                                                                                              259 CACCAAGGCGAACGAGGGGGCCATCTACCCTGACAACACCACTGATTTTCAAAGAGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           319 TGTTCACGTAAAGAACTTTGCCTCTAGGCCCTACACTTTTCATGCTCATGGGGTAACTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       727 cattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatccta 786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         439 GTATAAGAAGGCCCTTTATTCTGAGTACACAGATGGCACCTTTACGAAGACTATAGACAA 380
                                                                                                                                   82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     607 gtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaag 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                           AAAAGATATTGCATCAGGACTCATAGGACC
                                                                                                                                                                                                                TCCTGGCGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCTCATGTGGATGCTCC 83
                                                                                                                                                                                                                                                              tocaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggt 966
                                                                                                                                                                                                                                                                                                               TGACAAACTGTTTCCTGGACAGCAGTATTTGTACGTGCTGCGTGCC---AATGAGCCAAG 143
                                                                                                                                                                                                                                                                                                                                                           tgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatgg 906
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCAGCCTGGATAGGGCTTTTTAGGCCCTGTCATCAAAGCTGAAGTTTGGAGACAAAGTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggt 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           215;
            AI526753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: msoares@blue.weeg.uiowa.edu

The sequence tag present in the cDNA between the NotI site and the oligo-dT track served to identify it as a clone from the normalized adult Ovary library. cDNA Library Preparation: M. Fatima Bonaldo, ph.D. Clone distribution: clones will be available through Research Genetics This clone is also available through the I.M.A.G.E. Consortium at LLNL (info@image.llnl.gov). IMAGE ID=1767329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               451 Eckstein Medical Research Building Iowa City, IA 52242, USA Tel: 319 335 8250 Fax: 319 335 9565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  University of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Soares, MB
Program for Rat Gene Discovery and Mapping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  On Mar 9, 1998 this sequence version replaced gi:2946779 Contact: Soares, MB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /lab_host="DHIOB (Life Technologies)"
/lab_host="Mector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Ecc RI; This library consists of a mixture of individually tagged normalized libraries constructed from rat placenta, adult lung, brain liver, kidney, heart, spleen, ovary, and muscle. The tag is a string of 3-5 nucleotides present between the Not I site and the oligo-dT track which allows identification of the library of origin of a clone within the mixture."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10116"
/clone="UI-R-A0-ae-g-10-0-UI"
/clone_lib="UI-R-A0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="Sprague-Daw]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Rattus norvegicus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
       625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 98.8; DB 10;
Pred. No. 6.5e-18;
       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 456;
18-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

```
γ
                                                                                                                                                                                                                                       뫄
                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
δã
                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                    668 ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                                                                                                                                                                                                                                                                                                    228
348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                  GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                    TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 287
                                                                                                                                                                                                                                           CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          uj42e03.y1 Sugano mouse liver mlia Mus musculus cDNA clone IMAGE:1922620 5' similar to gb:M13699 CERULOPLASMIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Marra,M., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Pe,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ri,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 625)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HUMAN);, mRNA sequence AI526753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Marra M/WashU-NCI Mouse EST Project 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Waterston, R. and Wilson, R. The WashU-NCI Mouse EST Project 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AI526753.1 GI:4440888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGI:978912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMAGE Consortium (info@image.llnl.gov) for further information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer: custom primer used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: liver; Vector: pME18S-FL3; Site_1: DraIII (CACTGTGTG); Site_2: DraIII (CACCATGTG); 1st strand cDNA was primed with an ollgo(dT) primer [ATGTGGCCTTTTTTTTTTTTTTT]; double-stranded cDNA was ligated to a DraIII adaptor [TGTTGGCCTACTGG], digested and cloned into distinct DraIII sites of the pME18S-FL3 vector (5' site CACTGTGTG, 3' site CACCATGTG). XhoI should be used to the part of the pment of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science). Custom primers for sequencing: 5' end primer CTTCTGCTCTANAAGCTGCG and 3' end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer CGACCTGCAGCTCGAGCACA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              be used to isolate the cDNA insert. S
performed to exclude fragments <1.5kb.</pre>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="C57BL"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="Sugano mouse liver mlia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="IMAGE:1922620"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 98.6; DB 10;
Pred. No. 8.3e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 625;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Size selection was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                               407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Person
Ritter
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
  밁
                                  Qy
                                                                               В
                                                                                                                   ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BG923886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                              Matches 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          968 aaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  585 AAAGATATTGCATCAGGACTCATAGGACCTCTA 617
                     668 ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                     608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
  288
                                                                                 228 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        602824585F1 NCI_CGAP_Mam6 Mus musculus cDNA clone IMAGE:4953333 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM10912 row: j column: 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
Tissue Procurement: Life Technologies, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG923886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia; Eutheria;
1 (bases 1 to 658)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BG923886.1 GI:14304362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG923886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA Library Preparation: Life Technolog cDNA Library Arrayed by: The I.M.A.G.E.
                                                                                                                                                                                                                                                                                        202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   quality sequence stop:
                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                /note-"organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Jeffrey Green, M.D., NIH"

131 c 148 g 177 t
                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
/dev_stage="5 months"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:10090"
/clone="IMAGE:4953333"
                                                                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 658
                                                                                                                                                                                 9.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rodentia;
                                                                                                                                                                Score 98.6; DB 11;
Pred. No. 8.5e-18;
0; Mismatches 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Consortium (LLNL)
                                                                                                                                                                     Indels
                                                                                                                                                                                                         Length 658;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05-JUN-2001
                                                                                                                                                                     Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murinae;
                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         be
                                                                                                                                                                     1;
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
BG977142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
 Query Match
Best Local s
Matches 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                             source
 ches 216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           728 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAAGATATTGCATCAGGACTCATAGGACCTCTA 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGGAGAGGGAGACAGCAATTGTGTGACCCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Jeffrey Green M.D.
                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plate: LLAM10972 row:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIH-MGC http://mgc.nci.nih.gov/
National Institutes of Health, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA sequence.
BG977142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BG977142 783 bp mRNA
602846744F1 NCI_CGAP_Mam6 Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Robert Strausberg, Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; 1 (bases 1 to 783)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG977142.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA Library Preparation: Life Technologies, cDNA Library Arrayed by: The I.M.A.G.E. Consc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        house mouse
                                                                                                                                                                                                                                                                                                                                                                                                      e: LLAMIU972 row: g column quality sequence start: 42 quality sequence stop: 772.
   Conservative
                                                                                                          note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI;
Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT.
Library constructed by Life Technologies. Investigator
providing samples: Jeffrey Green, M.D., NIH"
a 161 c 176 g 210 t
                                                                                                                                                                                                    /clone_lib="NCI_CGAP_Mam6"
/sex="female, virgin"
/tissue_type="infiltrating ductal carcinoma"
/dev_stage="5 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                 /db_xref="taxon:10090"
/clone="IMAGE:4977442"
                                                                                                                                                                                                                                                                                                                                    /strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                         /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:14364779
                 9.9%;
0;
                 Score 98.6; DB Pred. No. 9e-18;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                 column: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mammalian
                                  DB 11;
174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene Collection (MGC)
Indels
                                  Length
                                    783;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMAGE:4977442 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-JUN-2001
ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murinae; Mus
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             407
```

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AK014835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                          JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 613 AAAGATATTGCATCAGGACTCATAGGACCTCTA 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            galaaagtottccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT
                                                                                                         Shibata,K., Itoh,M., Alzawa,K., Nagaoka,S., Sasaki,N., Carninci,P., Konno,H., Akiyama,J., Nishi,K., Kitsunai,T., Tashiro,H., Itoh,M., Sumi,N., Ishii,Y., Nakamura,S., Hazama,M., Nishine,T., Harada,A., Yamamoto,R., Matsumoto,H., Sakaguchi,S., Ikegami,T., Kashiwagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and Hayashizaki,Y., RIKEN Integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer conservations of the sequence analysis (RISA) system-384-format sequence research. 10 (11), 1757-1771 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                          Carninci,P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh,M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genome research. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Methods in 99279253
                       4 (bases 1 to 3739)
The RIKEN Genome Exploration
FANTOM Consortium.
                                                                       11076861
                                                                                             20530913
                                                                                                                                                                                                                                                                                                                                                                                                20499374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10349636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  High-efficiency full-length Methods in enzymology. 303,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Carninci, P. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (strain:C57BL/6J) adult male testis cDNA to mRNA, clone_lib:RIKEN full-length enriched mouse cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAP trapper.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AK014835.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AK014835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AK014835 3739 bp mRNA HTC 05-JUL-2001 Mus musculus adult male testis cDNA, RIKEN full-length enriched Library, clone:4921507J22, full insert sequence.
                                                                                                                                                                                                                                                                                                                                                                      11042159
                                             (bases 1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases
                                                                                                                                                                                                                                                                                                                                              (bases 1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GI:12852907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA cloning
19-44 (1999)
                       Research Group Phase II Team
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus.
                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                    new genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       847
```

```
QY
                                                                                              Вb
                                                                                                                                         Qγ
                                                                                                                                                                                              밁
                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                            899
                                                                                                                                                                                                                                                                                            415
595 ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                          608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                                                                                                                                                                                                                                                                                 Match 9.9%;
Local Similarity 55.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                         attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                                                                                                                                                          TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 474
                                                                                              GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGGTAACGTAC 594
                                                                                                                                                                                                 CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 534
                                                                                                                                                                                                                                                                                                                                                                                             216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Adachi, J., Aizawa, K., Akahira, S., Akimura, T., Aono, H., Arai, A., Arakawa, T., Carninci, P., Fukuda, S., Fukunishi, Y., Furuno, M., Arakawa, T., Carninci, P., Fukuda, S., Fukunishi, Y., Furuno, M., Hirawa, T., Hori, F., Imotani, K., Ishi, Y., Itch, M., Izawa, M., Kato, H., Kawai, J., Imotani, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y., Okido, T., Owa, C., Saito, H., Salto, R., Sakai, C., Sakai, K., Sano, H., Sasaki, D., Shibata, K., Shibata, Y., Shinagawa, A., Shiraki, T., Sogabe, Y., Suzuki, H., Tagami, M., Tagawa, A., Takahashi, F., Tanaka, T., Tejima, Y., Toya, T., Yasunushi, A., Yoshino, M., Muramatsu, M., and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Exploration Research Group, RIKEN Gemomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Fax:81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of Physical and Chemical Research (RIKEN), Laboratory for Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Please visit our web site (http://genome.gsc.riken.go.jp/) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 409, 685-690 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Functional annotation of a full-length mouse cDNA collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cDNA library was prepared and sequenced in Mouse Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 3739)
                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="testis"
/clone_lib="RIKEN full-length enriched mouse cDNA library"
/dev_stage="adult"
1 768 c 821 g 995 t 1 o+hore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10090"
/db_xref="MGD:MGI:1907105"
/db_xref="MGD:MGI:88476"
/clone="4921507J22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 98.6; DB 12 Pred. No. 1.5e-17;
                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 174;
                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 12;
                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 3739;
                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                             1;
```

```
Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AI225600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             968 aaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   712 CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           655 GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         772 AAAGATATTGCATCAGGACTCATAGGACCTCTA 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uj06c05.yl Sugano mouse liver mlia Mus musculus cDNA clone IMAGE:1891112 5' similar to gb:M13699 CERULOPLASMIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dub
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AI225600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AI225600.1 GI:3808653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGI:975436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HUMAN);, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nouse mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 1006)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           primer: custom primer used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop:
                  constructed by Dr. Sumio Sugano (University of Tokyo Institute of Medical Science). Custom primers for sequencing: 5' end primer CTTCTGCTCTAAAAGCTGCG and 3' end primer CGACCTGCAGCACA."

198 c 224 g 274 t 10 others
                                                                                                                                /note="Organ: liver; Vector: pME18S-FL3; Site_1: DraIII
(CACTGTGTG); Site_2: DraIII (CACCATGTG); 1st strand cDNA
                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                               /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                         /sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="Sugano mouse liver mlia"
                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="IMAGE:1891112"
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /strain="C57BL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1006 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      463.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-OCT-1998
                                                                                                                                                                                      XhoI should
```

۳.

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
BF150467
                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Locus
                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               584 NAAGATATTGCATCAGGACTCATAGGACCTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           668 ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTGGAGAGGGAGACAGCANTTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCCC---ATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGCCTGGCTAGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          215;
                                                                                                                                                                                                                                   Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                            High quality sequence stop: 428
Location/Qualifiers
                                                                                                                                                                 MGI:1427189
Seq primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF150467 669 bp mRNA EST 29-DEC-2000 uy86b07.yl NCI_CGAP_Mam5 Mus musculus cDNA clone IMAGE:3666421 5'similar to SW:CERU_MOUSE Q61147 CERULOPLASMIN PRECURSOR; mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF150467.1
EST.
                                                                                                                                                                                                                                                                                                                                                                   Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mammalia; Eutheria;
1 (bases 1 to 669)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BF150467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence.
                                                                                                                                                                                                                    image.llnl.gov/image/html/iresources.shtml
                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                     Fumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                     National Cancer Institute, Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                    NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nouse mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                 primer: -40RP from Gibco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                /strain="C57/B6"
/db_xref="taxon:10090"
/clone="IMAGE:3666421"
/clone_lib="NCI_CGAP_Mam5"
                                                                                        /organism="Mus musculus'
/tissue_type="tumor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:11031862
                                                                                                              . 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9.8%;
54.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 98.2; DB 10;
Pred. No. 1.3e-17;
0; Mismatches 175;
gross
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               616
                                                                                                                                                                                                                                                                                                                                                                                                                       Genome
   tissue"
                                                                                                                                                                                                                                                                                                                                                                                                                     Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1006;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406
                                                                                                                                                                                                                                                        þe
FEATURES
                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
```

```
RESULT
BG862595
                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTNTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGATATTGCATCAGGACTCATANGACCTCTA 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATNTACCACTCCCATGTTGATGCTCNC
                                            cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLN
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLAM10828 row: k column: 19
High quality sequence stop:
     Location/Qualifiers
                                                                                                                                                                                                                                                                 Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                  Unpublished (1999
                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 632)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Manmmalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG862595 632 bp mRNA EST 29-MAY-2001 602795978F1 NIH_CGAP_Mam4 Mus musculus cDNA clone IMAGE:4917258 5',
                                                                                                                                                                                                                                          Tissue Procurement: Lothar Hennighausen Ph.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG862595.1 GI:14213133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Organ: mammary; Vector: pCMV-SPORP6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="7 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.8%;
54.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 97.8; DB 11; Pred. No. 1.5e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches 176;
                           631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 t
                                                                                                                                                                     Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 669;
                                                                                                                                                                                                                                          Priscilla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
--
                                                                                                                         can
                                                                                                                                                                                                                                             Furth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            787
                                                                                                                      be
                                                                                                                                                                                                                                                                                                                                                                                                                Mus.
```

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                              COMMENT
                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                              AA865338/c
                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                      JOURNAL
                                                                                                                TITLE
                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAGATATTGCATCAGGACTCATAGGACCTCTA 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gataaagtottcootggtggaagcoatacatatgtotggoaggtootgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTCAGACTATAGACAAA 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215;
                                                                                                                                                                                                                                                                                                                                                          AA865338 521 bp mRNA EST 29-APR-1998 og88d10.s1 NCI_CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1455379 similar to gb:M13699 CERULOPLASMIN PRECURSOR (HUMAN);, mRNA
Contact: Robert Strausberg, Ph.D. Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Christopher M
                                                                   Unpublished (1997)
                                                                                        National Cancer Institute, Cancer Genome Anatomy Tumor Gene Index
                                                                                                                                                          Mammalia; Eutheria;
1 (bases 1 to 521)
                                                                                                                                                                                                       Eukaryota; Metazoa;
                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                AA865338.1 GI:2957614
                                                                                                                                                                                                                                                                                                                                       sequence.
                                                                                                                                NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally. Primar: Oligo dT. Average insert 2.5 kb. Library constructed by Life Technologies, catalog # 12018-016. Investigators providing samples: Lothar Hennighausen/Priscilla Furth, NIH Reference for transgenic model: Li et al., Cell Growth and Differentiation 7, 3-11 (1996). Note: this is a NCI_CGAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Mus musculus"
/db_xref="taxon:10000"
/clone="IMAGE:4917258"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="NIH_CGAP_Mam4"
/tissue_type="tumor, gross tissue"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9.7%;
54.7%;
Christopher Moskaluk, M.D.,
                                                                                                                                                                                 Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             139 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 97; DB 11;
Pred. No. 2.5e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 175; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  173 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 632;
  Ph.D., Michael R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                           ω
```

```
VERSION
KEYWORDS
                                                                                                                                    RESULT 1
BE912296
                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
SOURCE
                                                     ACCESSION
                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                             185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               606 tgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaa 665
                                                                                                                                                                                                                                       966 taaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  365 AACCGGTCTGGCTTGGGTTTTTAGGCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT
                                                                                                                                                                                                                  65 CAAAAGATATTGCCTCAGGACTCATCGGACCTTTA 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                          11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ggccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtgg 725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 366
                                                                                                                                                                                                                                                                                            GTCCTGGGGAAGGAGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC
                                                                                                                                                                                                                                                                                                                                    gtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg
                                                                                                                                                                                                                                                                                                                                                                           ATGACAAAGTATATCCAGGAGAGCAGTATACATACATGTTGCCTTGCCACTGAAGAACAAA 126
                                                                                                                                                                                                                                                                                                                                                                                                            atgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatg 905
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTATAAGGAACATGAGGGGCCCATCTACCCTGATAACACCACAGATTTTCAAAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         www-bio.llni.gov/bbrp/image/image.html
Insert Length: 656 Std Error: 0.00
Seq primer: -40ml3 fwd. ET from Amersham
High quality sequence stop: 360.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cDNA Library Preparation: M. Bento Soares, Ph.D. cDNA Library Arrayed by: Greg Lennon, Ph.D. DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: NCI-CGAP clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
                                                       BE912296
                                                                                            601666013F1 NCI_CGAP_Mam1 Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Emmert-Buck, M.D., Ph.D.
house mouse
                                     BE912296.1 GI:10409387
                                                                            mRNA sequence.
                                                                                                                   BE912296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                constructed by Bento Soares and M. Fatima Bonaldo. _{\rm 1} 100 c 107 g 176 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Na and Eco RI sites of the modified p7/73 vector. Library went through one round of normalization. Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /Clone="IMAGE:1455379"
/Clone=1ib="NCI_CGAP_Kid5"
/tissue_type="2 pooled tumors (clear cell type)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 95.8; DB 10;
Pred. No. 5.2e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              107 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches 187;
                                                                                                   musculus
                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 521;
                                                                                                   clone
                                                                                                     IMAGE: 3966051 5',
                                                                                                                       29-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the Not I
                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                                                                                                                                                                                                                                                                                                           186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306
```

```
RESULT 1
AL556703
              DEFINITION
                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                       538 AAAGATATTGCATCAGGACTCATAGGA 564
                                                                                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                aaagacttgaattcaggcctcattgga 994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
                                                                                                                                                                                                                                               CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA
                                                                                                                                                                                                                                                                                           ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta 967
                                                                                                                                                                                                                                                                                                                                           GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC--
                                                                                                                                                                                                                                                                                                                                                                              gataaagtetteeetggtggaageeataeatatgtetggeaggteetgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGCCTGGCTAGGGTTTTTAGGCCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 300
AL556703 918 bp mrNA EST 16-FEB-200: AL556703 LTI_NFL006_PL2 Homo sapiens cDNA clone CSODK005YI02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: cgapbs-remail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Plate: LLAM9138 row: j column: High quality sequence stop: 596.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus (bases 1 to 878)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidIrectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Gilbert Smith, NIH"

a 188 c 195 g 227 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="IMAGE:3966051"
/clone_lib="WCI_CGAP_Mam1"
/tissue_type="tumor, biopsy sample"
/dev_stage="3 months, virgin"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="FVB/N"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.6%;
54.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 95.8; DB 11; Pred. No. 6.2e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 878;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                  16-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus.
                          RESULT 1
AV653260
                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                            g
                                                                                                                                                                     Qy
                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                             S
S
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ΩĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                         846 atgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     606 tgtacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaa 665
                                                                                                                          559 CAAAAGATATTGCCTCAGGACTCATCGGACCTTTA 593
                                                                                                                                                                     966 taaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                                                                                                    499 GTCCTGGGGAAGGAGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC
                                                                                                                                                                                                                                                             906 gtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                    259 AACCGGTCTGGCTTGGGTTTTTAGGCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT 318
                                                                                                                                                                                                                                                                                                                   ATGACAAAGTATATCCAGGAGAGCAGTATACATACATGTTGCCTTGCCACTGAAGAACAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTATAAGGAACATGAGGGGGCCATCTACCCTGATAACACCACAGATTTTCAAAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcct 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              208;
       AV653260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  prime, mRNA sequence.
AL556703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: seqref@genoscope.cns.fr,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL556703.1 GI:12899623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia; Eutheria;
1 (bases 1 to 918)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="LTI_NFL006_PL2"
/tissue_type="placenta"
/tissue_type="placenta"
/note="vector: pCWNSPRT 6; Site_l: NotI; 1st strand cDNA
/note="vector: pCWNSPRT 6; Site_l: NotI; 1st strand cDNA
was primed with a NotI-oligo(dT) primer. Five prime end
enriched, double-stranded cDNA was digested with Not I and
cloned into the Not I and Eco RV sites of the pCMVSPORT 6
vector. Library was normalized. Library was constructed by
Life Technologies. Contact: Feng Liang Life Technologies,
a division of Invitrogen 9800 Medical Center Drive
Rockville, Maryland 20850, USA Fax: (1) 301 610 8371
Email: filang@lifetech.com URL:
http://fulllength.invitrogen.com"
http://fulllength.invitrogen.com"
103 a 169 c 192 g 253 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="CS0DK005YI02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9.6%;
52.7%;
       634
    dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 95.8; DB Pred. No. 6.3e-1
       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187;
    EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 918;
    07-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                           438
                                                                                                                                                                                                                                                                                                                                                                                                                                                         845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        378
```

밁 δÃ DЬ 29 B δÃ δÃ

뫄 Ş δÃ 밁 δÃ

Вb

밁

```
REFERENCE
AUTHORS
RESULT :
                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                 밁
                                                                                         QY
                                                                                                                               밁
                                                                                                                                                         Qy
                                                                                                                                                                                             В
                                                                                                                                                                                                                            δ.
                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                606 tgtacaaaaagactctgtttgtagaattcaccgatcaccttttcaaccatcgctaagccaa 665
                                                                                                                                                                                                 443
                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                786
                                                                                                                                                                                                                                                                                                                                323
                                                                 563 CAAAAGATATTGCCTCAGGACTCATCGGACCTTTA 597
                                                                                                                                                                                                                                                                                                                                                                                               263 AACCGGTCTGGCTTGGGTTTTTAGGCCCCTATTATCAAAGCTGAAACTGGAGATAAAGTTT 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                              203 TATATAAGAAGGCCCTTTATCTTCAGTACACAGATGAAACCTTTAGGACAACTATAGAAA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                  ggccaccctggatgggtctgctacgtccatccatgctgaggtttatgatacagtgg 725
                                                                                                                                                                                                                                                                                     tcattacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcct 785
                                                                                 taaaagacttgaattcaggcctcattggagcccta 1000
                                                                                                                                 GTCCTGGGGAAGGATGGCAATTGTGTGACTAGGATTTACCATTCCCACATTGATGCTC 562
                                                                                                                                                             gtccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctgg 965
                                                                                                                                                                                                 atgataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatg
                                                                                                                                                                                                                                                                 ACTATAAGGAACATGAGGGGGCCATCTACCCTGATAACACCACAGATTTTCAAAAGAGCAG
                                                                                                                                                                                                                                                                                                                                207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Zeguang Han
Chinese National Human Genome Center at Shanghai
351 Guo Shoujing Road, Zhangjiang Hi-Tech Park, Pudong,
201203, P. R. China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qian,B., Wu,T., Huang,Q., Huang,C., Kang,B., Gao,X., Xu,Z., Xiao,F., Xu,X., Li,N., Peng,Y., Liu,F., Qu,J., Song,H., Cheng,Z., Qu,J., Zeng,L., Xu,S., Gu,W., Tu,Y., Jia,J., Fu,G., Ren,S., Zhong,M., Lu,G., Yang,Y., Gu,Y., Chen,Z. and Han,Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  {\tt AV653260} GLC Homo sapiens cDNA clone GLCDJA09 3', mRNA sequence. {\tt AV653260}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: hanzg@chgc.sh.cn
This clone is available at CHGC in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AV653260.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 634)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03, P. R. China
86-21-50801919(ex.45)
86-21-50801922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="corresponding non cancerous liver tissue"
/dev_stage="Adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="GLCDJA09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Vector: pBluescript sk(-); Site_1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="GLC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:9874274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 94.2; DB 10;
Pred. No. 1.6e-16;
0; Mismatches 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               172 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shanghai.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 634;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EcoRI; Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shanghai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                  905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xiao, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                              δÃ
                                                Qy
                                                                                 DЬ
                                                                                                                                                Ъ
                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                    197
                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    );, mRNA sequence.
AA461838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGI:503679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 477)
                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                   Bonaldo."
102 c
```

```
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                          608 tacaaaaagactctgtttgtagaattcacggatcaccttttcaacatcgctaagccaagg 667
                                                                                                                                                                                                                                                     77 TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 136
                                 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac 787
                                                                                                                                                       ccaccctggatgggtctgctaggtcctaccatccaggctgaggtttatgatacagtggtc 727
GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                                                                                                            CCAGCCTGGCTAGGGGTTTTTAGGCCCTGTCATCAAAGCTGAAGTTGAAGATAAAGTTTAT 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         vf95d04.rl Soares_mammary_gland_NbMMG Mus musculus cDNA clone IMAGE:851527 5' similar to gb:M13699 CERULOPLASMIN PRECURSOR (HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA461838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA461838.1 GI:2186729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq primer: -28ml3 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      quality sequence stop: 413.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T 3']; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned in the Not I and Eco RI sites of the modified pT7T3 vector RNA provided by Dr. Minoru Ko, Wayne State Univ. Library constructed and normalized by Bento Soares and M.Fatima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="mammary gland"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:10090"
/clone="IMAGE:851527"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Organ: mammary gland; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Soares_mammary_gland_NbMMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ith a modified polylinker; Site_1: Not I; Site_2: Eco lst strand cDNA was primed with a Not I - oligo(dT)
                                                                                                                                                                                                                                                                                                                                                                                                                9.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             477 bp
                                                                                                                                                                                                                                                                                                                                                                                  Score 93.8; DB 10;
Pred. No. 1.9e-16;
0; Mismatches 172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ∏RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              125 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d with Not I and cloned into the modified pT7T3 vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 477;
                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                     ω
--
```

```
BASE COUNT
                                 Ş
                                                                          Ъ
                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
BE914540
   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                   Query Match
Best Local S
Matches 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                            157
434 AAAGATATTGCATCAGGACTCATAG 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       968 aaagacttgaattcaggcctcattg 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  257
                                                                                                                                                     Local Similarity 53.9 les 212; Conservative
                                                                                                la caaaaaagactctgtttgtagaattcacgggatcaccttttcaacatcgctaagccaagg 667
                                                                          TATAAGAAGGCCCTTTATTTTGAGTACACAGATGGCACCTTTAGTAAGACTATAGACAAA 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGAGAGGGAGACAGCAATTGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCATGCC---AATGAGCCAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tissue Procurement: Gilbert Smith, Ph.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLN
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.lln1.gov
plate: LLAM9137 row: 1 column: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.

BE914540
BE914540.1 GI:10413270
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BE914540 576 bp mRNA
601665638F1 NCI_CGAP_Mam1 Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 576)
                                                                                                                                                                                                                                                                        178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            quality sequence stop: 576.
                                                                                                                                                                                                                                                                /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Slte_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigator providing samples: Gilbert Smith, NIH* a 119 c 127 g 151 t 1 others
                                                                                                                                                                                                                                                                                                                                                             /clone_lib="NCI_CGAP_Mam1"
/tissue_type="tumor, biopsy sample"
/dev_stage="3 months, virgin"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:10090"
/clone="IMAGE:3965721"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                     9.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .576
                                                                                                                                                  Score 91.8; DB 11;
Pred. No. 7.9e-16;
0; Mismatches 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                musculus cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gene Collection (MGC)
                                                                                                                                                                                     Length 576;
                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMAGE: 3965721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
Murinae; Mus
                                                                                                                                                   4;
                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     be
                                                                                                                                                   1;
```

```
Q
                                                                             В
                                                                                                              QY
                                                                                                                                                       В
                                                                                                                                                                                          Q
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                 Qy
513 AAAGATATTGCATCAGGACTCATAGGACCTCTA 545
                                                                                                                                                         397
                                                                                                                                                                                                                                    337 ACCAAGGAGTATGAGGGAGCCGTCTACCCTGACAACACCACTGATTTTCAACGGGCTGAT
                                                                                                                                                                                                                                                                                                                                  728 attacacttaagaacatggcttcccatcctgtcagtcttcatgctgttggtgtatcctac
                                                                                                  ccaatggcctctgacccactgtgccttacctactcatatctttctcatgtggacctggta
                      aaagacttgaattcaggcctcattggagcccta
                                                                                                                                                       GACAAAGTGCTTCCCGGACAACAGTATGTGTATGTGCTGCCATGCCAATGAGCCAAGTCCT
                                                                                                                                                                                                                                                       GGAGAGG----GAGACAGCAATGTGTGACCAGGATTTACCACTCCCATGTTGATGCTCCA 512
                                                                                                                                                                               gataaagtcttccctggtggaagccatacatatgtctggcaggtcctgaaagagaatggt
                                                                                                                                                                                                                                                                                                                GTTCACTTAAAGAACCTTGCCTCTAGGATCTACACTTTTCATGCACATGGGGTAACGTAC
                                      1000
                                                                                                                                                       456
                                                                                                                                                                                              907
```

Search completed: January 17, 2002, 14:58:55 Job time: 8656 sec

•			
			,

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                January 17, 2002, 16:26:26; Search time 5101.32 Seconds (without alignments) 3233.904 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1472140 seqs, 8248589755 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-740-211-14_COPY_4000_4999
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 gatcaaggtggatctgttgg......cgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                        gb_pat:*
gb_ph:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                 gb_ov:*
em_htgo_hum:*
em_htgo_inv:*
em_htgo_rod:*
em_htg_inv:*
em_htg_inv:*
em_htg_rod:*
em_htg_rod:*
                                                                                                                                                                                                                                                                                           em_ba:*
em_fun:*
                                                                                                                                                                                                                                                                                                                                   gb_sy:*
                                                                                                                                                                                                                                                                                                                                                                gb_ro:*
gb_sts:*
                                                                                                                                                                                                                                                                                                                                                                                                          gb_pl:*
                                                                                                                              em_sts:*
em_sy:*
                                                                                                                                                                                       em_pat:*
em_ph:*
                                                                                                                                                                                                                    em_or:*
em_ov:*
                                                                                                                                                                                                                                                 em_om:*
                                                                                                                                                                                                                                                                em_in:*
                                                                                                                                                                                                                                                                               em_hum:*
                                                                                                    em_vi:*
                                                                                                                  em_un:*
                                                                                                                                                           em_ro:*
                                                                                                                                                                           em_pl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2944280
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

113 115 115 116 117 117 117 117 117 117 117 117 117		Result
790 790 790 790 790 790 790 790 790 790	100 100 79 79 79 79 79 79	Score
55.5 5.5 5.6 5.5 5.5 5.5 5.5 5.5 5.5 5.5	000. 95. 95. 79. 79. 79. 79.	Query Match I
8967 9009 9009 9009 9009 9009 9009 9029 902		Length D
• • • • • • • • • • • • • • • • • • •		Œ
HSFVIIIR AR003710 AR029065 AR128844 I31901 I31901 I63424 HUMFVIII HUMFVIII HUMFVIII 108644 I108644 I108645 I108457 I10	AR138378 AR146888 AR138377 AR146887 AR110040 AR034084 AR071306 AR112722 I77105 I77105 I77105 I77304 AR052730	ID
X01179 Human mRNA AR003710 Sequence AR029065 Sequence AR126884 Sequence 131901 Sequence 3 163424 Sequence 1 K01740 Human coagu M14113 Human coagu AR003585 Sequence 4 108644 Sequence 4 108644 Sequence 4 108645 Sequence 2 108645 Sequence 2 108645 Sequence 2 108647 Sequence 2 108647 Sequence 2 108648 Sequence 2 108648 Sequence 1 102054 Sequence 6 163427 Sequence 1 163427 Sequence	ω 20848787	Description

ALIGNMENTS

ORIGIN	BASE COUNT		source	FEATURES	JOURNAL		TITLE	AUTHORS	REFERENCE		ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	LOCUS	AR138378	RESULT 1
	1375 a 1151 c 1155 g 1318 t	/organism="unknown"	14999	Location/Qualifiers	Patent: US 6200560-A 14 13-MAR-2001;	target cells	Adeno-associated virus vectors for expression of factor viii by	Couto, L.B., Colosi, P.C. and Qian, X.	1 (bases 1 to 4999)	Unclassified.	Unknown.	Unknown.	•	AR138378.1 GI:14480723	AR138378	Sequence 14 from patent US 6200560.	AR138378 4999 bp DNA		
							ression or										PAT		
							Tactor ATTT DA	C									TO-2001	2001	

```
밁
                              Š
                                                            Ъ
                                                                                          Ş
                                                                                                                        В
                                                                                                                                                   Qy
                                                                                                                                                                                  В
                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
   4960
                                                             4900
                                                                                                                         4840
                                                                                                                                                                                    4780
                                                                                                                                                                                                                                               4720
                                                                                                                                                                                                                                                                                                         4660
                                                                                                                                                                                                                                                                                                                                                                  4600
                                                                                                                                                                                                                                                                                                                                                                                                                             4540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4000
                               961
                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4300
                                                                                           901
                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
               cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
CCTCAGTGAGCGAGCGAGCGCAGCTGCCTGCAGGACAT
                                                                        gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccggggcg
                                                                                                                                   tttgtgtgcggccgcaggaacccctagtgatggagtttggccactcccttctctgcgcgctc
                                                                                                                                                                              CCTCTACTGACTCGAGCCTAATAAAGGAAATTTATTTTCATTGCAATAGTGTGTTTGGTTTT
                                                                                                                                                                                                                                                        ccagagttgggtgcaccagattgccctgaggatggaggttctggggtgcgaggcacagga
                                                                                                                                                                                                                                                                                                                   cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCGCTCACTGAGGCCGGGCGACCAAAGGTCGCCCGACGCCCGGGCTTTGCCCGGGCGG
                                                                                                                     TTTGTGTGCGGCCGCAGGAACCCCTAGTGATGGAGTTGGCCACTCCCTCTCTGCGCGCTC
                                                                                                                                                                                                                                        CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                    CACACCTGTGGTGAACTCTTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                            9tggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                              GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA 4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG 4239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 4059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT 4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT 4179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA 4119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 1000; DB 6; ilarity 100.0%; Pred. No. 1.2e-299; Conservative 0; Mismatches 0;
4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                       960
                                                                                                                     4899
                                                          4959
                                                                                                                                                                                                                                                                                                    4719
                                                                                                                                                                                                                                                                                                                                                              4659
                                                                                                                                                                                                                                                                                                                                                                                                                        4599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
```

```
Ş
                               뫄
                                                       QΥ
                                                                                  B
                                                                                                            δõ
                                                                                                                                        DЬ
                                                                                                                                                                8
                                                                                                                                                                                             В
                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                    DЪ
                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
AR146888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                               4600
                                                                                   4540
                                                                                                                                         4480
                                                                                                                                                                                              4420
                                                                                                                                                                                                                                                 4360
                                                                                                                                                                                                                                                                                                                                                          4240
                                                                                                                                                                                                                                                                                                                                                                                                         4120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4000
                                                                                                              541
                                                                                                                                                                   481
                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 tcagaagttctccagcctctacatctctcagtttatcatctatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                            tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                            GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                         9tggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                 TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                          TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                       tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagggtggct 480
                                                                                                                                                                                                                                              TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                             tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                   TTTAAATAGTTGCCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 4999)
Couto, L.B., Colosi, P.C. and Qian, x.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR146888 4999 bp DNA
Sequence 14 from patent US
AR146888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Adeno-associated vectors cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent: US 6221349-A 14 24-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AR146888.1 GI:15110691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 1000; DB 6; ilarity 100.0%; Pred. No. 1.2e-299; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="unknown"
1151 c 1155 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6221349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of factor VIII by target
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                 4599
                                                                                                                                     4539
                                                                                                                                                                                           4479
                            4659
                                                                                                            600
                                                                                                                                                                                                                                              4419
                                                                                                                                                                                                                                                                                                  4359
                                                                                                                                                                                                                                                                                                                                                      4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4059
                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                           4239
                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
AR138377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                Qy
                                                                                                                        밁
                                                                                                                                           δÃ
                                                                                                                                                                Ър
                                                                                                                                                                                   Qy
                                                                                                                                                                                                          망
                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
               δĀ
                                        Дb
                                                          δÃ
                                                                                망
                                                                                                                                                                                                                                                                                                                BASE COUNT
밁
                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4660
                                                                                                                                                                                                                                                                                                                                     source
 4275
                                                                                 4155
                                                                                                                                                                  4035
                                                                                                                                                                                                           3975
                                        4215
                                                                                                                           4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                     181
                                                                                                                                              121
                   301
                                                             241
                                                                                                                                                                                      61
                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                               ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccagagttgggtgcaccagattgccctgaggatggaggttctgggggtgcgaggcacagga
                                                                                                                                                                                                         gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccggggcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCTACTGACTCGAGCCTAATAAAGGAAATTTATTTTCATTGCAATAGTGTGTTGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA 4094
                                                                                                                                                                           tcagaagttctccagcctctacatctctcagttttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCGCTCACTGAGGCCGGGCGACCAAAGGTCGCCCGACGCCCGGGCTTTGCCCCGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTTGTGTGCGGCCGCAGGAACCCCTAGTGATGGAGTTGGCCACTCCCTCTCTGCGCGCTC
                                                                                                                         GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
  TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
          tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                        gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                   979;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 13 from patent AR138377
                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 11933)
Couto,L.B., Colosi,P.C. and Qian,X.
                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                  Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR138377.1 GI:14480722
                                                                                                                                                                                                                                                                                                                                                          Patent: US 6200560-A 13 13-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                               Adeno-associated virus vectors for expression
                                                                                                                                                                                                                                                                                                                                                                  target cells
                                                                                                                                                                                                                                                                                                                                                                                                             Unclassified
                                                                                                                                                                                                                                                                                                                 3258
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                  ည
                                                                                                                                                                                                                                                                                                                 /organism="unknown"
2818 c 2717 g
                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                      .11933
                                                                                                                                                                                                                                                            95.4%;
97.9%;
                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                            Score 954.4; DB 6;
Pred. No. 2.2e-285;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US
                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6200560
                                                                                                                                                                                                                                                                                                                   3140
                                                                                                                                                                                                                                                     16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAT
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                        Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                of
                                                                                                                                                                                                                                                                                                                                                                                 factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-JUN-2001
                                                                                                                                                                                                                                                     <u>ن</u>
                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4839
   4334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4899
                       360
                                           4274
                                                                                   4214
                                                                                                        240
                                                                                                                             4154
                                                                                                                                                                                                                                                     ۲.
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                                                                                                                Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                      DEFINITION
                                                   ORIGIN
                                                                                             FEATURES
                                                                                                                                                REFERENCE
                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                           AR146887
                                                                BASE COUNT
                                                                                                                                                                                                                                  COCUS
Query Match
Best Local S
Matches 979
                                                                                                                           TITLE
                                                                                                       JOURNAL
                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4335
                                                                                                                                                                                                                                                                                      4930
                                                                                                                                                                                                                                                                                                                               4870
                                                                                                                                                                                                                                                                                                                                                                        4810
                                                                                                                                                                                                                                                                                                                                                                                                                 4755
                                                                                                                                                                                                                                                                                                                                                                                                                                                          4695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                            TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                cctcagtgagcgagcgagcgcgagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                      CCTCAGTGAGCGAGCGAGCGCAGCTGCCTGCAGGACAT 4969
                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCTACTGACTCGAGAATAAAAGATCAGAGCTCTAGAGAT----CTGTGTGTTTGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                   cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                 AR146887
Sequence 13
AR146887
AR146887.1
                                                                                                                                     1 (bases 1 to 11933)
Couto,L.B., Colosi,P.C. and Qian,X.
                                                                                                                           Adeno-associated vectors
                                                                                                                                                                     Unknown
                                                                                                                                                                               Unknown.
                                                                                                       Patent:
                                                                                                                   cells
                                                                                                                                                          Unclassified
                                                                D
                                                                                                        US 6221349-A 13 24-APR-2001;
                                                                                                                                                                                                                        13
                                                              /organism="unknown"
2818 c 2717 g
                                                                                     1. .11933
                                                                                            Location/Qualifiers
                                                                                                                                                                                                                        11933 bp
from patent
                                                                                                                                                                                                     GI:15110690
             95.4%;
97.9%;
   Score 954.4; I
Pred. No. 2.2e
0; Mismatches
                                                                                                                           tor expression
   954.4; DB 6;
No. 2.2e-285;
ismatches 16;
                                                                                                                                                                                                                          6221349
                                                                  3140
                                                                                                                              of
                       Length 11933;
                                                                                                                                                                                                                                     08-AUG-2001
                                                                                                                                ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                             4754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4454
                                                                                                                                                                                                                                                                                                                                   4929
                                                                                                                                                                                                                                                                                                                                                                                                                    4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                            4869
```

QΥ

979;

Conservative

0;

Indels

5

Gaps

1;

Similarity

gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60

```
RESULT
AR110040
LOCUS
     DEFINITION
ACCESSION
                                                                            g
                                                                                             Qy
                                                                                                                    밁
                                                                                                                                       Q
                                                                                                                                                             В
                                                                                                                                                                                 Qy
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                               Вр
                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                      4870
                                                                             4930
                                                                                                                                                              4810
                                                                                                                                                                                                       4755
                                                                                                                                                                                                                                                 4695
                                                                                                                                                                                                                                                                                         4635
                                                                                                                                                                                                                                                                                                                                 4575
                                                                                                                                                                                                                                                                                                                                                                         4515
                                                                                                                                                                                                                                                                                                                                                                                                                  4455
                                                                                                                                                                                                                                                                                                                                                                                                                                                          4395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4215
                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3975
                                                                                                                                          901
                                                                                                                                                                                   841
                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                         cctcagtgagcgagcgagcgcagctgcctgcaggacat 1000
                                                                                                                 GCTCGCTCACTGAGGCCGGGCGACCAAAGGTCGCCCGACGCCCGGGCTTTGCCCGGGCGG
                                                                                                                            gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccggggctttgcccgggcg 960
                                                                                                                                                           tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                   CCTCTACTGACTCGAGAATAAAAGATCAGAGCTCTAGAGAT-----CTGTGTGTTTGGTTT
                                                                                                                                                                                                              cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt
                                                                                                                                                                                                                                                        ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                             CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                    tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                      CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                              GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                       gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                        gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | teacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagttggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA 4094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
   AR110040
Sequence
AR110040
              41 from
                      4670 bp
             patent
              SD
              6114148
                        PAT
                        14-FEB-2001
                                                                                                                                                            4869
                                                                                                                                                                                                    4809
                                                                                                                                                                                                                                              4754
                                                                                                                                                                                                                                                                                      4694
                                                                                                                                                                                                                                                                                                                              4634
                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                      4574
                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                             4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                       4454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4154
                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4034
ρy
                                                             В
                   밁
                                     Qy
                                                                                γ
                                                                                                      В
                                                                                                                         Q
                                                                                                                                                밁
                                                                                                                                                                  δλ
                                                                                                                                                                                         밁
                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
```

```
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                 4373
                                                                                           4313
                                                                                                                                                                                                                      4193
                                                                                                                                                         4253
                                                                                                                                                                                                                                                                                 4133
                                                                                                                                                                                                                                                                                                                                              4073
                                                                                                                                                                                                                                                                                                                                                                                                         4013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                              721
                                                                                                                           661
                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hes 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match
                            ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                       cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                      9tggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                    ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
cctctactgactcgagcc 798
                                                                                         CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                      GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                   TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                 tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                              GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                          TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                          tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       High level expression of proteins
Patent: US 6114148-A 41 05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       High
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 4670 Seed, B. and Haas, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AR110040.1 GI:12826316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="unknown"
1072 c 1036 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .4670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4670)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 790; DB 6;
Pred. No. 2.7e-234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4670;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,:
```

4372

4312

660

4192

4132

4072

4012

360

3952

3892

240 3832

300

540

4252

Gaps

0

3712 60

밁

4433

CCTCTACTGAGGGTGGCC

4450

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                          γQ
                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                          δδ
                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                      Qy
                                                                                                                                                  В
                                                                                                                                                                       Qy
                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                       Ş
                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
 B
                      δÃ
                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                    4411
                                                                                                                                                                                                                                                                                                                                                                                                                                                        4291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                    4651
                                                                                                                                                                                                   4591
                                                                                                                                                                                                                                                    4531
                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                         481
                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                     GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tcagaagttctccagcctctacatctctcagttttatcatcatgtatagtcttgatgggaa
tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                   gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA 4350
                                                                                                               gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcaggggagtaaaatc 540
                                                                                                                                                               tcacctccaagggaggaattgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                    tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                      GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                   GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                    TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                      TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                    TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AR034084 5035 bp DI
Sequence 1 from patent US
AR034084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1
Voorberg, J. J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hybrid proteins with modified activity Patent: US 5869292-A 1 09-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR034084.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="unknown"
1127 c 1110 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        to 5035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:5949689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 790; DB 6; I
Pred. No. 2.7e-234;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1110 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5869292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                             600
                                                                                                     4770
                                                                                                                                                      4710
                                                                                                                                                                                                                                                                                                        4530
                                                                                                                                                                                                                                                                                                                                                        4470
                                                                                                                                                                                                                                                                                                                                                                                                         4410
                                                    4830
                                                                                                                                                                                                       4650
                                                                                                                                                                                                                                                        4590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
```

```
DEFINITION ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                        Вb
                                                                                                                                                               ρy
                                                                                                                                                                                       В
                                                                                                                                                                                                          ΩV
                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                  VΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR071306
  밁
                       Q
                                                밁
                                                                    Qy
                                                                                             B
                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5011
                                                                                                                                            4531
                                                                                                                                                                                                                                                                                                                                   4291 TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                4231 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                  61 tcagaagttctcccagcctctaccatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                             1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
CCTCTACTGAGGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctctactgactcgagcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgagggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                           tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                          TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                            TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
AR071306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hybrid proteins with modified activity Patent: US 5910481-A 1 08-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AR071306.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Voorberg, J.J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR071306
                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 5035)
                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 from patent US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="unknown"
1127 c 1110 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                          79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:7222194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dq
                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 790; DB 6;
Pred. No. 2.7e-234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5910481.
                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                    4290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4950
                                                    4710
                                                                                                  4650
                                                                                                                        420
                                                                                                                                                                                            4530
                                                                                                                                                                                                                                          4470
                                                                                                                                                                                                                                                                                        4410
                                                                                                                                                                                                                                                                                                                                      4350
                                                                                                                                                                                                                                                                                                                                                                                                           60
      4770
                                                                                                                                                4590
                                                                                                                                                                                                                                                                 240
```

0;

```
Qy
              Ş
                                      Дb
                                                         δÃ
                                                                                     DЪ
                                                                                                           Qy
                                                                                                                                      В
                                                                                                                                                                                      В
                                                                                                                                                                                                            ρy
                                                                                                                                                                                                                                    ДЬ
                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                     DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
AR112722
                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                      Matches 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                      4471
                                                                                                                                      4411
                                                                                                                                                                                      4351
                                                                                                                                                                                                                                                                                     4231
                                                                                                                                                                                                                                      4291
                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4831
              361
                                                              301
                                                                                                             241
                                                                                                                                                              181
                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                             \vdash
           tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                               tttaaattagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                              tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                   GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                               CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGCTACCTTCGAATTCACCC 495
                                 TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                   TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                               tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 4290
                                                                                                                                                                                                                                                                                              gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                   GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                   TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cctctactgactcgagcc 798
CCTCTACTGAGGGTGGCC 5028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hybrid proteins with modified activity Patent: US 6130203-A I 10-OCT-2000; Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1 from patent US 6130203.
ARI12722
ARI12722.1 GI:14092622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Voorberg, J.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AR112722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 5035)
                                                                                                                                                                                                                                                                                                                                                                                                             1484
                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             מ
                                                                                                                                                                                                                                                                                                                                                                                                         /organism="unknown"
1127 c 1110 g
                                                                                                                                                                                                                                                                                                                                               79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              þ
                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                            Score 790; DB 6; Length 5035; Pred. No. 2.7e-234;
                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                            1314
                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-MAY-2001
                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                Gaps
                                   4590
                                                                                   4530
                                                                                                                                   4470
                                                                                                                                                                                                                                   4350
                                                                                                                                                                                    4410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                  0;
```

```
ρ
                              밁
                                                        Qy
                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                      Вр
                                                                                                                  QУ
                                                                                                                                                맑
                                                                                                                                                                          QΨ
                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION ACCESSION
                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
177105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                  Matches
                                                                                                                                               6270 TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                        6210 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4591 TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                              61 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                      1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                     gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
tttgcacccaactcattatagcattcgcagcactctttcgcatggagttgatggctgtga 300
                            GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG 6449
                                            ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg 240
                                                                                      GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                              790;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCTACTGAGGGTGGCC 5028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ccagagttgggtgcaccagattgccctgaggatggaggttctggggtgcgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA 5010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               177105
Sequence
177105
                                                                                                                                                                                                                                                                                                                                                                                                              Yonemura, H., Tajima, Y., Sugawara, K. and Masuda, K. Process for preparing human coagulation factor VIII Patent: US 5693499-A 1 02-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   177105.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 6999)
                                                                                                                                                                                                                                                                                                                                                         2224
                                                                                                                                                                                                                                                                 79.0%; ilarity 100.0%; Conservative
                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 from patent US
                                                                                                                                                                                                                                                                                                                                                    /organism="unknown"
1503 c 1480 g
                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
1. .6999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:3013259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            999 bp
                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                              Score 790; I
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5693499.
                                                                                                                                                                                                                                                                                                                                                       1792
                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                             DB 6; Le
                                                                                                                                                                                                                                                                 0,:
                                                                                                                                                                                                                                                                                            Length 6999;
                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                               Gaps
                                                                                      6389
                                                                                                                                                6329
                                                                                                                                                                                                        6269
                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                 0;
```

```
RESULT
127063
                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                   δĀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                        뫄
                   Ş
                                          Db
                                                                                                                                                                                                                                                                                                         DEFINITION
Б
                                                             δÃ
                                                                                                                                                    BASE COUNT
                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                               REFERENCE
                                                                                    Query Match
Best Local S
Matches 790
                                                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6450
                                                                                                                                                                                                                                                                                                                                                                        6990
                                                                                                                                                                                                                                                                                                                                                                                                                                                             6870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6630
 6327
                                           6267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                Local Similarity
                     19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                  ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCTACTGA 6999
                                                                                                                                                                                                                                                                                                                                                                                            cctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
          tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
  TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                              Sequence
I27063
                                                                                                                                                                                               1 (bases 1 to 7056)
Pittman,D., Rehemtulla,A., Wozney,J.M.
Chimeric procoagulant proteins
Patent: US 5563045-A 1 08-OCT-1996;
                                                                                                                                                                                                                                                               Unknown
                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                                    127063.1
                                                                                                                                                                                                                                                                                                                    127063
                                                                                                                                                                                                                                        Unclassified
                                                                                                                                                      2232
                                                                                    79.0%; ilarity 100.0%; Conservative
                                                                                                                                                      Ø
                                                                                                                                                                                                                                                                                                         1 from
                                                                                                                                                    /organism="unknown"
1517 c 1491 g
                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                     GI:1817839
                                                                                                                                                                                                                                                                                                                    7056 bp
                                                                                                                                                                                                                                                                                                        patent
                                                                                       0;
                                                                                                Score 790; DB 6; Lo
Pred. No. 2.9e-234;
                                                                                                                                                                                                                                                                                                           SD
                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                           5563045
                                                                                                                                                      1816
                                                                                                                                                                                                                       and
                                                                                                           Length 7056;
                                                                                        Indels
                                                                                       0;
                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6889
                                                                                                                                                                                                                                                                                                                                                                                                                      6989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
   6386
                                                                                        0;
```

```
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                 LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                            B
ORIGIN
           BASE COUNT
                                                 FEATURES
                                                                                                                                    SOURCE
                                                                                                                                                KEYWORDS
                                                                                                                                                          VERSION
                                                                                                                                                                        ACCESSION
                                                                       TITLE
                                                                                                                       ORGANISM
                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6507
                                                                                                                                                                                                                                                                                                                                                             6927
                                                                                                                                                                                                                                                                                                                                                                                                                                                            6807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6687
                                    source
                                                                                                                                                                                                                                                            ||||||||||
| 7047 || CCTCTACTGA | 7056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                    781 cctctactga
                                                                                                                                                                                                                                                                                                                                                                                                          CCAGAGTTGGGTGCACCAGATTGCCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                          CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                       cacacctgtggtgaactctctagaacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTAAATAGTTGCAGCATGCCATTGGGAATGGAAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                       Sequence
105404
                                                          1 (bases 1 to 7272)
Sarver, N. and Drohan, W.
Factor VIII-C analogs
Patent: EP 0265778-Al 3 04-MAY-1988;
                                                                                                                       Unknown
                                                                                                           Unclassified
                                                                                                                                    Unknown
                                                                                                                                                           I05404.1
                                                                                                                                                                                                I05404
              2271 a
                                                                                                                                                                                   3 from Patent EP
            /organism="unknown"
1591 c 1533 g
                                     1. .7272
                                             Location/Qualifiers
                                                                                                                                                             GI:591046
                                                                                                                                                                                                 7272 bp
              1877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                6866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6506
                                                                                                                                                                                                                                                                                                                 7046
                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                 6986
                                                                                                                                                                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                                                                                                                                                                                 6926
                                                                                                                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
```

Best Local Similarity Matches 793; Conserv

Conservative

0,

5

0

Gaps

0;

79.0%; 99.4%;

Score 790; DB 6; Pred. No. 3e-234; Mismatches

DB 6;

Length 7272; Indels

Query Match

```
SOURCE
                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                              밁
                                        REFERENCE
                                                                                                                                             DEFINITION
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                       KEYWORDS
                                                                                                                   VERSION
                                                                                                                               ACCESSION
                                                                                                                                                                    AX052730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                          Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
              AUTHORS
TITLE
                                                                              ORGANISM
  JOURNAL
                                                                                                                                                                                                                                                                         6987
                                                                                                                                                                                                                                                                                                                            6927
                                                                                                                                                                                                                                                                                                                                                                               6867
                                                                                                                                                                                                                       7047
                                                                                                                                                                                                                                                                                                                                                                                                                                 6807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6447
                                                                                                                                                                                                                                            781 cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                    ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgagggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tactgottcatcotactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                      CCTCTACTGAGGGTGGCC 7064
                                                                                                                                                                                                                                                                                                                        CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                     cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                         9t99actctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 600
                                                                                                                                                                                                                                                                                                                                                                           GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT 6926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ggattCatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA 6566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
Saenko,E.L. and Strickland,D.K.
Methods of reducing factor viii clearance
Patent: WO 0071714-A 1 30-NOV-2000;
                                     Mammalia; Eutheria;
1 (bases 1 to 8967)
                                                                                                                              Sequence 1 from Patent W00071714.
                                                              Eukaryota; Metazoa;
                                                                              Homo sapiens
                                                                                          numan
                                                                                                                   AX052730.1
                                                                                                                                                         AX052730
                                                                                                                 GI:12226920
                                                                                                                                                      8967 bp
                                                Chordata;
Primates;
                                               Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
            compositions therefor
                                                                                                                                                     12-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                             6866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
```

```
밁
                                       Ş
                                                                                 DЬ
                                                                                                                 QY
                                                                                                                                                             Ъ
                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                              mat_peptide
BASE COUNT 2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                          Matches
  6496
                                                                                                                                                               6376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sig_peptide
                                                                                                                       61
                                                                           tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                    gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                         GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 6435
                                                                                                                                                                                                gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     American National Red Cross (US)
                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NSCSMPLGMESKAISDAQITASSYFTINFATISSSSKAILIGISTAS I IRRELEGOLDI
LQVDFQKTMKVTGVTTQGVKSLLTSMYVKEFLISSSODGHQWTLFFQNGKVKVFQGNQ
DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        IFDETKSWYFTENMERNCRAPCNIQMEDPTFKENYRFHAINGYIMDTLPGLVMAQDQR
IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEYKMALVRLYPGVETVEMLPSKAGIWR
VECLIGEHLHAGMSTHELVYSNKCQTPLGMASGHIRDFOITANSGOYGQMAPKLARLHY
SGSINAWSTKEPFSWIKVDLLAPMIHGIKTQGARQKESSLYISQFIINYSLDGKKWQ
TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KWNEANRPGKVPFLRVATESSAKTPSKILDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
FKKKDTILSLNACESNHAIAAINEGONKPEIEVTWAKQGRTERLCSQNPPVLKRHQRE
ITRTTLQSDQEEIDYDDTISVEMKKEDFDIYDDEDNGSPRSFOKKTRHYFIAAVERLM
DYGMSSSPHVLRNRAQSGYPQFKKVVFQEETDGSTTQPLYRGELNEHIGLIGPYIRA
EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFWKVQHHM
APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MQIELSTCFFLCLLRFCFSATRRYYLGAVELSWDYMQSDLGELP
VDARFPPRVPKSFPENTSVVKKTLFVEETDHLFNIAKRPPPMKGLLGFTIQAEVYDT
VVITLKNMASHPVSLHAVGVSYWKASEGAEVDDQTSQREKEDDKVFPGGSHTYVMQVL
KENGPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AVFDEGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="unnamed protein product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                              1898
                                                                                                                                                                                                                                                           79.0%;
                                                                                                                                                                                                                                                                                                                                                              O
                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                           Score 790; DB 6;
Pred. No. 3.1e-234;
                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                              Length 8967;
                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                    Gaps
                                                                             6495
                                                                                                                                                                                                60
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                    BASE COUNT
ORIGIN
 망
                       δÃ
                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                     ACCESSION
                                                   Query Match
Best Local S
Matches 793
                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                7156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6556
                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7036
  6376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                Local Similarity
tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                CCTCTACTGAGGGTGGCC 7173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtggactctcttttttcagaatggcaaagtaaaggttttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                       cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                    171409 8967 bp
Sequence 1 from patent
171409
                                                                                                                                                                     Bodner,M., De Polo,N.J., Chang,S., Hsu,D.Chi-Tang and Respess, Retroviral delivery of full length factor VIII Patent: US 5681746-A 1 8-OCT-1997; Location/Qualifiers
                                                                                                                                                                                                                                                 Unknown
                                                                                                                                                                                                                                      Unclassified
                                                                                                                                                                                                                                                                Unknown
                                                                                                                                                                                                                       (bases 1 to 8967)
                                                     Conservative
                                                                                                                                 Ø
                                                                                                                               /organism="unknown"
1898 c 1833 g
                                                                                                                                                          .8967
                                                              79.0%;
99.4%;
                                                     0;
                                                                 Score 790; DB 6; 1 Pred. No. 3.1e-234;
                                                                                                                                                                                                                                                                                                                   SD
                                                     Mismatches
                                                                                                                                                                                                                                                                                                                    5681746.
                                                                                                                                   2395
                                                                             Length 8967;
                                                      Indels
                                                     0;
                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
     6435
                                                      0
```

```
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                        멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                      Db
                                                                                                                                                                                                                                                                                          ρy
COMMENT
                                                                                       REFERENCE
                                                                                                                                         SOURCE
                                                                                                                                                                           ACCESSION
                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                  HSFVIIIR
              MEDLINE
                         JOURNAL
                                                                           AUTHORS
                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6496
                                                                                                                                                                                                                                                                      7156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6796
                                                                                                                                                                                                                                                                                                                      7096 CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                            781 cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                          CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                      cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tactgetteateettacetactttaceaatatgtttgecacetggtetcetteaaaagetegaet 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | toagaagttctccagcctctacatctctcagttttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                    CCTCTACTGAGGGTGGCC
                      1 (bases 1 to 8967)

Nood, W. I., Capon, D. J., Simonsen, C. C., Eaton, D. L., Gitschier, J., Keyt, B., Seeburg, P. H., Smith, D. H., Hollingshead, P., Wion, K. L., Delwart, E., Tuddenham, E. G. D., Vehar, C. A. and Lawn, R. M. Expression of active human factor VIII from recombinant DNA clones Nature 312 (5992), 330-337 (1984)
Data kindly reviewed (20-MAR-1986)
                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                          Homo sapiens
                                                                                                                                                                                                       HSFVIIIR
             85061548
                                                                                                                                                      factor VIII; signal peptide
                                                                                                                                                                  X01179.1
                                                                                                                                                                                             mRNA for
                                                                                                                                                                   GI:31498
                                                                                                                                                                                                       8967 bp
                                                                                                                                                                                           factor VIII.
                                                                                                                                                                                                                                                                         7173
 þу
     W. Wood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6795
                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                              7035
                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
```

FEATURES

```
δ
δ
                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                    al Similarity
793; Conserv
                                                                                                                                                                                                                                                                                                                                                                            2841
                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHIGHER TO WITCH ENDITE IN AMERICAND CONTROLLED SET AT ELLAND, ELLECTRICAL CHICAGO CHI
                                                                                                                                                                                                                                                                                                                                                                            Ø
                                                                                                                                                                                                                                                                                                                                                                /note="polyA site"
1898 c 1833 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="polyadenylation signal"
8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IFDETKSWYFTENMERNCRAPCNIQMEDPTFKENYRFHAINGYIMDTLPGLVMAQDOR
IRWYLLSMGSNENIHSIHFSGHVFTVRKKEEYKMALYNLYPGVFETVEMLPSKAGIWR
VECLIGEHLHAGMSTLFLVYSNKCQTFLGMASGHIRDFQITASGQYGQWAPKLARLHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DYGMSSSPHVLRNRAQSGSVPQFKKVVFQEFTDGSFTQPLYRGELNEHLGLLGPYIRA
EVEDNIMVTFRNQASRPYSFYSSLISYEEDQRQGAEPRKNFVKPNETKTYFWKVQHHM
APTKDEFDCKAWAYFSDVDLEKDVHSGLIGPLLVCHTNTLNPAHGRQVTVQEFALFFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DSFTPVVNSLDPPLLTRYLRIHPQSWVHQIALRMEVLGCEAQDLY®
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KWNEANRPGKVPFLRVATESSAKTPSKLLDPLAWDNHYGTQIPKEEWKSQEKSPEKTA
FKKKDTILSLNACESNHAIAAINEGQNKPEIEVTWAKQGRTERLCSQNPPVLKRHQRE
ITRTTLQSDQEEIDYDDTISYEMKKEDFDIYDEDENQSPRSFQKKTRHYFIAAVERLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="mature factor VIII (aa 1-2332)"
7163. .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NSCSMPLGMESKAISDAQITASSYFTNMFATWSPSKARLHLQGRSNAWRPQVNNPKEW
LQVDFQKTMKVTGVTTQGVKSLLTSMYVKEFLISSSQDGHQWTLFFQNGKVKVFQGNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    {	t TYRGNSTGTLMVFFGNVDSSGIKHNIFNPPIIARYIRLHPTHYSIRSTLRMELMGCDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SGSINAWSTKEPFSWIKVDLLAPMIIHGIKTQGARQKFSSLYISQFIIMYSLDGKKWQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MOIELSPGFFLOLLRECPSATRRYYLGAVELSWDYMOSDLGELPVDAREPPRVPKSEPENTSVVYKKTLFVEFTDHLENIAKPRPMKGLLGPTIQAEVYDTVTTLKNMASHBVSLHAVGVSYMKASBGAEYDDQTSQBEKEDDKVFPGGSSHTYVWOYLVTTLKNMASHBVSLHAVGVSYMKASBGAEYDDQTSQBEKEDDKVFPGGSHTYKOYLVKDLKKENCPMASDPLCLTYSYLSHVDLVKDLNSGLIGALLVCREGSLAKEKTQTLHKFILLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="3/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              {\tt IGMGTTPEVHSIFLEGHTFLVRNHRQASLEISPITFLTAQTLLMDLGQFLLFCHISSH}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       {	t AVFDEGKSWHSETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHV}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="CAA25619.1"
/db_xref="GI:31499"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="signal peptide (aa -19 to -1)"
110. .7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="
110. .1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9606"
<1. .109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
1. .8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="SWISS-PROT:P00451"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="factor VIII precursor"
                                                                                                                                                                     79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "3' untranslated region".8953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5' untranslated region"
                                                                                                                                0; Mismatches
                                                                                                                                                                 Score 790; DB 9; I Pred. No. 3.1e-234;
                                                                                                                                                                                                                                                                                                                                                                            2395
                                                                                                                                <u>ن</u>
                                                                                                                                                                                                      Length 8967;
                                                                                                                                Indels
                                                                                                                            0;
                                                                                                                            Gaps
                                                                                                                            0,
```

```
ACCESSION
VERSION
  BASE COUNT
                                          FEATURES
                                                                                            REFERENCE
                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                  SOURCE
                                                                                                                                             KEYWORDS
                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                    Locus
                                                                                                                                                                                                            AR003710
                                                                                                                                                                                                                          RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                   TITLE
JOURNAL
                                                                                                                    ORGANISM
                                                                              AUTHORS
                                                                                                                                                                                                                                                                 7156
                                                                                                                                                                                                                                                                                                                                                                    7036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6496
                                                                                                                                                                                                                                                                                                                     7096
                                                                                                                                                                                                                                                                                                                                                                                                                         6976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6376 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 6435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                        781 cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgagggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                 tctgcttaccagcatgtatgtgaaggagttcctcatcttccagcagtcaagatggccatca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                CCTCTACTGAGGGTGGCC
                                                                                                                                                                                                                                                                                                                    CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                      CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                   gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                        Sequence
AR003710
                                                   l (bases 1 to 9009)
Lollar, J.S. and Runge, M.S.
Hybrid human/animal factor VIII
Patent: US 5744446-A 1 28-APR-1998;
                                                                                                                      Unknown
                                                                                                                                  Unknown.
                                                                                                                                                            AR003710.1
                                                                                                                                                                                                  AR003710
                                                                                                       Unclassified.
  2853 a
                                                                                                                                                                                 1 from patent US
/organism="unknown"
1907 c 1844 g
                                       Location/Qualifiers
                            .9009
                                                                                                                                                            GI:3964969
                                                                                                                                                                                                9009 bp
                                                                                                                                                                                                                                                                7173
                                                                                                                                                                                     5744446
  2405
                                                                                                                                                                                                                                                                                                                  7155
                                                                                                                                                                                                                                                                                                                                                                      7095
                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                       7035
                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
```

ORIGIN

```
Qy
                        g
                                Ωy
                                              Ъ
                                                        Qy
                                                                      망
                                                                               Qy
                                                                                              밁
                                                                                                       Qy
                                                                                                                               Ωy
                                                                                                                                              밁
                                                                                                                                                       δÃ
 B
                                                                                                                      망
                                                                                                                                                                    뫄
                                                                                                                                                                                δÃ
                                                                                                                                                                                            Вþ
                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                               δã
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                      VΩ
                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                               Ϋ́
                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                           Query Match 79.0%;
Best Local Similarity 99.4%;
Matches 793; Conservative
                                                                                               6957
                                                                                                                      6897
                                                                                                                                              6837
 7197
                        7137
                                                                       7017
                                                                                                                                                                      6777
                                                                                                                                                                                                                     6657
                                                                                                                                                                                                                                                                      6537
                                                7077
                                                                                                                                                                                             6717
                                                                                                                                                                                                                                             6597
                                                                                                                                                                                                                                                                                             6477
                                                                                                                                                                                                                                                                                                                     6417
            781
                                                                                  601
                                                                                                                                  481
                                   721
                                                            661
                                                                                                                                                          421
                                                                                                                                                                                 361
                                                                                                                                                                                                         301
                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                   ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga 780
gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                             | 9caagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                      GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                      GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                            TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                   tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                           Score 790; DB 6; 1
Pred. No. 3.1e-234;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                           5; Indels
                                                                                                                                                                                                                                                                                                                                                      Length 9009;
                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                           Gaps
                                                          720
                                                                      7076
                                                                                  660
                                                                                                                                  540
                                                                                                                                                                                 420
                                                                                                                                                                                            6776
                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                     6596
                                              7136
                                                                                              7016
                                                                                                                      6956
                                                                                                                                              6896
                                                                                                                                                                     6836
                                                                                                                                                                                                                    6716
                                                                                                                                                                                                                                            6656
                                                                                                          600
                                                                                                                                                                                                                                                                                                                                           0;
```

Search completed: January 17, 2002, 16:26:53 Job time: 13934 sec

•				
		•		
	·			
			·	,

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perfect score:
                                                                                                                                                                                                                                  N_Geneseq_1101:*

1: /SIDS2/gcgdata/
2: /SIDS2/gcgdata/
3: /SIDS2/gcgdat/
4: /SIDS2/gcgdat/
5: /SIDS2/gcgda/
5: /SIDS2/gcgd/
6: /SIDS2/gcg/
7: /SIDS2/gcg/
7: /SIDS2/gcg/
9: /SIDS2/gc/
9: /SIDS2/gc/
9: /SIDS2/gc/
10: /SIDS2/gc/
11: /SIDS2/gc/
11: /SIDS2/gc/
12: /SIDS2/gc/
13: /SIDS2/gc/
14: /SIJ/
15: /SIJ/
16: /SIJ/
18: /SIJ/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  on:
1: /SIDS2/gcgdata/geneseq/yeneseqn/NA1980.DAT: *
2: /SIDS2/gcgdata/geneseq/yeneseqn/NA1981.DAT: *
3: /SIDS2/gcgdata/geneseq/yeneseqn/NA1981.DAT: *
3: /SIDS2/gcgdata/geneseq/yeneseqn/NA1982.DAT: *
4: /SIDS2/gcgdata/geneseq/yeneseqn/NA1983.DAT: *
5: /SIDS2/gcgdata/geneseq/yeneseqn/NA1984.DAT: *
5: /SIDS2/gcgdata/geneseq/yeneseqn/NA1984.DAT: *
7: /SIDS2/gcgdata/geneseq/yeneseqn/NA1987.DAT: *
8: /SIDS2/gcgdata/geneseq/yeneseqn/NA1987.DAT: *
10: /SIDS2/gcgdata/geneseq/yeneseqn/NA1989.DAT: *
11: /SIDS2/gcgdata/geneseq/yeneseqn/NA1989.DAT: *
12: /SIDS2/gcgdata/geneseq/geneseqn/NA1990.DAT: *
13: /SIDS2/gcgdata/geneseq/geneseqn/NA1992.DAT: *
14: /SIDS2/gcgdata/geneseq/geneseqn/NA1993.DAT: *
15: /SIDS2/gcgdata/geneseq/geneseqn/NA1993.DAT: *
16: /SIDS2/gcgdata/geneseq/geneseqn/NA1994.DAT: *
17: /SIDS2/gcgdata/geneseq/geneseqn/NA1995.DAT: *
18: /SIDS2/gcgdata/geneseq/geneseqn/NA1995.DAT: *
19: /SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT: *
10: /SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT: *
10: /SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT: *
11: /SIDS2/gcgdata/geneseq/geneseqn/NA1999.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        930621 seqs, 428662619 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-740-211-14_COPY_4000_4999
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      January 17, 2002, 16:34:09; Search time 343.96 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gatcaaggtggatctgttgg.....cgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2492.514 Million cell updates/sec
```

and is derived by analysis of the total score distribution.	score greater than or equal to the score of the result being printed,	Fred.
S Q	gr	Ö
eri	eat	
ved	er	S
bу	chai	ne I
ana	10	Jumit
ı⊥уs	, eg	ĕr
S	ial	9
O.	ť	res
the	Ę	ult
ţ	S	s P
cal	ore	redi
scc	of	.cte
ře	5	ğ,
dis	ē	S S
tri	esu	han
but	14	е
ion.	peir	6
•	j bt	nave
	prin	ω U
	ıted	
	•	

110987654 110987654	Result No.
1000 1000 954.4 954.4 870.0 790 790 790 790 790 790	Score
100.0 100.0 95.4 95.4 87.1 79.0 79.0 79.0 79.0 79.0	% Query Match Length DB
4999 11933 111933 17944 4275 4629 4670 4832 4832 5035	ength [
21 22 22 22 22 20 10 20 19 19	i
AAD00122 AAD08613 AAD00121 AAD08612 AAF84647 AAN90654 AAX88293 AAV23339 AAV19581 AAV15338	ID
Recombinant adeno Human factor VIII Recombinant adeno Human factor VIII Plasmid DLZ6 encod DNA encoding 740 A Human Factor VIII Human Factor VIII Human Factor VIII Human Factor VIII Factor VIIII-dB695-	Description

÷	4 4	- 4-	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
141	764.4	782	785.2	787	787	787	787	788.4	788.4	788.4	788.4	788.4	788.4	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
/4.1	76.4	78.2	78.5	78.7		78.7	78.7	78.8		78.8	78.8	78.8	78.8	79.0	79.0	79.0	79.0	79.0	79.0	•	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0
43/3	7440	4629	7440	7053	4545	4275	4272	9009	8241	8241	7059	4830	4616	12445	12022	11846	9354	9164	9080	9068	9029	9009	9009	9009	9009	9009	9009	8975	8975	8967	8967	7056	5094
2	0	16	7	18	ø	ø	9	19	9	9	9	9	9	21	20	20	18	20	19	19	22	22	20	19	19	18	14	21	Φ	22	17	15	21
AAX82258	AAN50375	AAQ76016	AAN60689	AAT51357	AAN80444	AAN80446	AAN80447	AAV18884	AAN81096	AAN81439	AAN81543	AAN81544	AAN81545	AAA49232	AAX82260	AAX82261	AAT73164	AAX82259	AAV19580	AAV15359	AAF60309	AAC90508	AAX91162	AAV12112	AAV25810	AAT61548	AAQ50185	AAZ38604	AAN50054	AAC87526	AAT31031	AAQ66615	AAA49231
Beta-domain delete	DNA sequence encod			VIII:C c	factor				cDNA sequence enco	VIII c		Human Factor VIII-	Human Factor VIII-			Factor VIII protei	cDNA encoding huma	omain d	factor		factor	factor	n factor	apiens	Human factor VIII			Human full-length	Human factor VIII	Human factor VIII	Factor-VIII full-1	Sequence of human	DNA construct HSO/

ALIGNMENTS

31-JUL-2000 (first entry)

AAD00122;

AAD00122 standard; DNA; 4999 BP

) <u>|</u>

```
RESULT
AADOU1.22
ID AADO
XX AADO
XX AADO
AC AADO
XX BECO
XX RECO
XX RECO
XX RECO
XX GENE
XX GE
                                                                                                                                                                                                                                                                                                                                                                   20-OCT-1998;
24-MAR-1999;
30-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recombinant Adeno Associated Vector; rAAV; pVm4.1cF8deltaB; promoter; human Factor VIII; hFVIII; EF1alpha; human elongation factor-lalpha; human growth hormone; hGH; ITR; inverted terminal repeat; haemophilia; gene therapy; ds.
                                                                                            WPI; 2000-339536/29.
                                                                                                                                                                                    Couto LB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-APR-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200023116-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Adeno associated virus.
                                                                                                                                                                                                                                                                            (AVIG-) AVIGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Recombinant adeno associated vector construct, pVm4.1cF8deltaB
                                                                                                                                                                                    Colosi PC;
                                                                                                                                                                                                                                                                                                                                                                   98US-0104994.
99US-0125974.
99US-0364862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US24495
```

New recombinant adenovirus-associated vector, useful for gene therapy

```
C(rAN) construct by M. 10F8deltaB. This expression vector comprises the CC promoter, first intro (-573 to +985) of human elongation factor lalpha CC (EF1alpha) gene, human Factor VIII coding sequence (hFVII) and a CC (EF1alpha) gene, human Factor VIII coding sequence (hFVII) and a CC polyadenylation signal from human growth hormone (hGH). This sequence is CC inserted between the AAV inverted terminal repeat (ITR) regions. The CC first 57 bp encoding the 19 amino acid signal peptide, A1 and A2 domains CC and 5 amino acids from the N-terminus of the domain. The light chain CC agment comprises the C-terminal 85 amino acids of B domain and the A3, CC land C2 domains. Both the heavy and light chain segments are cloned CC into the same plasmid seperated by 42 nuclectides coding for 14 residues CC of the B domain, that is deleted. This plasmid is operably linked to CC control sequences, that directs the transcription and translation of the Factor VIII gene. The adeno-associated viral vectors are used for gene CC therapy, because of their broad host range, safety profile and duration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 9; Fig 6; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to treat hemophilia, comprises at least a portion of Factor VIII operably linked to control sequence -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4060
                                                                 4540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4999 BP; 1375 A; 1151 C; 1155 G; 1318 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of expression in the infected hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
601 gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    present DNA sequence is a recombinant adenovirus-associated vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcagaagttctccagcctctacatctctcagttttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 4059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 4179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 4119
                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                              totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                       gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                            tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat 4359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg 240
                                                                                                                                                                                      gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                               tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                       tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1000;
Pred. No. 5.6
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.6e-302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                            4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                    4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4239
                                                                                                                                                                                                      4539
                                                                              4599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

Q Ъ Š

밁 δÃ ₽ οy В Ş

QΥ

Ş 밁 δÃ B δõ 밁 δõ B Ş 밁

밁

```
QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4600 gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 4659
The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a second recombinant adeno-associated virion comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is useful in gene therapy for treating haemophilia A in mammals, in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4780 cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt
                                                                                                                                             Treating blood clotting disorder, especially hemophilia in mammals, by administering recombinant adeno-associated vectors which express blood coagulation factor VIII \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAD08613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Recombinant adeno-associated viral vector; rAAV; factor VIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human factor VIII expressing rAAV vector pVm4.lcF8-B partial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAD08613 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                 Claim 19; Fig 6; 90pp; English.
                                                                                                                                                                                                                                                                                                                         21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                                                                         28-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                      WO200145510-A1
                                                                                                                                                                                                                                                                                                                                                                                                                Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                             Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                              Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pVm4.1cF8-B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                         WPI; 2001-417955/44.
                                                                                                                                                                                                                                   Couto LB, Colosi PC,
                                                                                                                                                                                                                                                                (AVIG-) AVIGEN INC
                                                                                                                                                                                                                                                                                               22-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961 cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cod clotting disorder; gene therapy; haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttgtgtgcggccgcaggaacccctagtgatggagttggccactcccttctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccagagttgggtgcaccagattgccctgaggatggaggttctggggttgcgagggcacagga. 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gctcgctcactgaggccgggcgaccaaaggtcgcccggacgcccgggctttgcccggggcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctcagtgagcgagcgcgcgcagctgcctgcaggacat 4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                              Adeno associated virus
                                                                                                                                                                                                                                                                                                                                                                                                                  Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S.
                                                                                                                                                                                                                                                                                                  99US-0470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA; 4999
                                                                                                                                                                                                                                       Qian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
```

0

```
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                Qy
                                                                                                                            В
                                                                                                                                                                 Qγ
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
Š
                                         ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. The present sequence is pVm4.1cF8-B vector without the plasmid backbone. It comprises human elongation factor 1 (EF1) promoter, B-domain deleted human factor VIII coding sequence, a poly A signal and AAV inverted terminal repeats (ITRs) at the ends. The vector encodes both the light and heavy chains of human factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4000 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4999 BP; 1375 A; 1151 C; 1155 G; 1318 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            separated by 14 amino acids of the B domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              4480
                                                                                                                                                                                                                                                                                                                                                                             4540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
  841 tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 4179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                            tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggggtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tactgetteateettacetactttaceaatatgtttgeeacetggteteetteaaaagetegact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                               cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt 840
                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                            cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                             gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                gtggactctcttttttcagaatggcaaagtaaaggttttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                       tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 4599
                                                                                                                                                                                                                                                                                                                                                                                                                                                            gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 4359
                                         cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttgttt
                                                                                                                            ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1000; DB 22; Pred. No. 5.6e-302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  term
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4239
                                                                                                                                                                                                                                                                                                   4659
                                                                                                                                    4779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4539
                                                                                                                                                                                                                   4719
                                                    4839
```

```
RESULTIANDOOLIT
AADOOLIT
AADOOLIT
AACA
XX
XX
XX
XX
AACA
XX
XX
AACA
XX
AACA
XX
AACA
XX
AACA
XX
AACA
XX
AACA

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вþ
                                                                                         cc (rAAV) construct, pAAV-F8-1. This expression vector comprises the HNF-3 CC albumin promoter, the first intron (-573 to +985) of human elongation CC factor-lalpha (EFlalpha) gene, human factor VIII coding sequence (hFVIII) CC and polyadenylation signal from human growth hormone (hGH). This sequence is inserted between the AAV inverted terminal repeat (ITR) regions. The CC first 57 bp encoding the 19 amino acid signal peptide, A1 and A2 domains CC and 5 amino acids from the N-terminus of the B domain. The light chain CC and 5 amino acids from the heavy and light chain segments are cloned cc into the same plasmid seperated by 42 nucleotides coding for 14 residues of the B domain, that is deleted. This plasmid is operably linked to control sequences, that directs the transcription and translation of the Factor VIII gene. The adeno-associated viral vectors are used for gene therapy to treat haemophilla. This method allows prolonged expression of the crapy, because of their broad hosts range, safety profile and duration as for the inferred hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4960 cctcagtgagcgagcgagcgcagctgcctgcaggacat 4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Recombinant Adeno Associated Vector; rAAV; pAAV-F8-1; human Factor VII hFVIII; HNF-3 albumin promoter; human elongation factor-lalpha; EFlalphuman growth hormone; hGH; inverted terminal repeat; ITR; haemophilia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Recombinant adeno associated vector construct, pAAV-F8-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAD00121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAD00121 standard; DNA; 11933 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200023116-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Adeno associated virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-339536/29.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Couto LB, Colosi PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-OCT-1998;
24-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Example 2; Fig 5; 92pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 operably linked to control sequence -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New recombinant adenovirus-associated vector, useful for gene therapy to treat hemophilia, comprises at least a portion of Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (AVIG-) AVIGEN INC.
                                                                       of expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc 4899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            present DNA sequence is a recombinant adenovirus-associated vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg 4959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccggggcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                               in the infected hosts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0104994
99US-0125974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0364862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99WO-US24495.
```

Sequence 11933 BP;

3258 A;

2818 C; 2717 G;

3140 T;

0 other;

```
밁
                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
     4930
                                                                          4870
                                                                                                                                            4810
                                                                                                                                                                                                                                                                                      4695
                                                                                                                                                                                                                                                                                                                                                        4635
                                                                                                                                                                                                                                                                                                                                                                                                                          4575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4335
                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4035
                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3975
                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 tcagaagttctccagcctotacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
cctcagtgagcgagcgcgcgcagctgcctgcaggacat
                cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
                                                             gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                  gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                                                   tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                 tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                              cctctactgactcgagcctaataaaggaaatttatttcattgcaatagtgtgttggttt
                                                                                                                                                                                                                                                                                              ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                            ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc 720
                                                                                                                                                                                                                                                                                                                                                                                                                                     gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9caagtggacttccagaagacaatgaaagtcacaggagtaactactcaggggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                        cctctactgactcgagaataaaagatcagagctctagagat----ctgtgtgttggttt
                                                                                                                                                                                                                                                                                                                                                 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                  gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttaaatagttgcagcatgccattgggaatggaggagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 4394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tttaaatagitgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 415/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    979;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95.4%;
97.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 954.4; DB 21;
Pred. No. 1.7e-287;
0; Mismatches 16;
 4969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                 4929
                                                                                                                                      4869
                                                                                                                                                                                                          4809
                                                                                                                                                                                                                                                                                                                                                 4694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4034
```

Qy B Qy В Q B Qy

밁

δõ

gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 180

```
RESULT
RE
             Db
                                                                    γ
                                                                                                                                     B
                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a second recombinant adeno-associated virion comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is useful in gene therapy for treating haemophilia A in mammals, in particular humans. The rAAV vector provides high level and long term expression of biologically active clotting factor VIII in vivo. The present sequence is pAAV-F8-1 vector without the plasmid hardboom of the present sequence is pAAV-F8-1 vector without the plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          backbone. It comprises HNF-3.mouse albumin promoter, a synthetic intron based on human elongation factor lalpha (EFlalpha) and immunoglobulin G (IGG) intron sequences, B-domain deleted human factor VIII coding sequence, poly A signal based on rabbit beta-globin sequence and AAV inverted terminal repeats (ITRs) at the ends. The vector encodes both the light and heavy chains of human factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 11933 BP; 3258 A; 2818 C; 2717 G; 3140 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Treating blood clotting disorder, especially hemophilia in mammals, administering recombinant adeno-associated vectors which express bl coagulation factor VIII \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 18; Fig 5; 90pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chimeric -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAD08612 standard; DNA; 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (AVIG-) AVIGEN INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200145510-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pAAV-F8-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               blood clotting disorder; gene therapy; haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Recombinant adeno-associated viral vector; rAAV; factor VIII; FVIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human factor VIII expressing rAAV vector pAAV-F8-1 partial sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAD08612;
                                                                           61
                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                              tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                             gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                              gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 403/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LB, Colosi PC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oryctolagus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Adeno associated virus
                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0470618
                                                                                                                                                                                                                                                                                                  95.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cuniculus.
                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                              Score 954.4; DB 22; Pred. No. 1.7e-287;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ВP
                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                      16;
                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                             Length 11933;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a subject
                                                                                                                                                                                                                                                            5; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l AAV
both the
   4094
                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                1;
```

Synthetic

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             р
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                      В
4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4335
                                                                                                                                                                                                                                        4930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                          AAF84647 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
              coagulation
                             Adeno-associated virus vector; B-domain; factor VIII; haemophilia
                                                           Plasmid DLZ6 encoding human B-domain deleted factor VIII.
                                                                                            29-JUN-2001
                                                                                                                                                                                        u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                             cctctactgactcgagcctaataaaggaaatttatttcattgcaatagtgtgttggttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgagggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 4634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtggactctcttttttcagaatggcaaagtaaaggttttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcaggggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 4454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 4334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                     cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                    gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccggggcgg
                                                                                                                                                                                                                                                                                                                                                                 tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                tttgtgtgcggccgcaggaacccctagtgatggagttggccactcccttctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                         cctctactgactcgagaataaaagatcagagctctagagat----ctgtgtgtttggttt 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  totgottaccagcatgtatgtgaaggagttcotcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                    cctcagtgagcgagcgcgcgcagctgcctgcaggacat 4969
                                                                                                                                                                                                                                                                                                   gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
              disorder; ss
                                                                                            (first entry)
                                                                                                                                                           DNA;
                                                                                                                                                             7944
                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4754
                                                                                                                                                                                                                                                                                                                                                                      4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4694
                                                                                                                                                                                                                                                                                                                                        960
```

```
Ş
                                                      밁
                                                                              γ
                                                                                                            밁
                                                                                                                                    δÃ
                                                                                                                                                                Matches
                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                          vector. The vector comprises a heterologous nucleotide sequence encoding B-domain deleted factor VIII operably linked with at least one enhancer and at least one promoter. The method results in the production of high titer rAAV vector stocks carrying the B-domain deleted factor VIII transgenes and expression cassettes, which generate adequate titers of virus for in vivo administration. The recombinant vectors are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatitis B virus.
                                                                                                                                                                                                                                                                     for treating haemophilia A, where the liver expresses the encoded B-domain deleted factor VIII, which is secreted into the blood. The also useful for the treatment of other coagulation disorders. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                New recombinant adeno-associated virus vector, useful for treating haemophilia A, comprises heterologous nucleotide sequence encoding B-domain deleted human factor VIII operably linked with liver-preferred expression control element -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                        4106
                                                                                                                                                                                                                                                         present sequence encodes a B-domain deleted factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                          The specification describes a recombinant adeno-associated virus (rAAV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200127303-A1.
                                                                                                            4046
                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 64; Fig 1; 87pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-273781/28.
P-PSDB; AAB67959.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Walsh CE, Chao H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12-OCT-2000; 2000WO-US28221
                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (UYNC-) UNIV NORTH CAROLINA
                             121
                                                                                 61
                                                                                                                                                                           Local Similarity
tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                         gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                      tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                    7944
                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0158780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= d
/note= "TK polyA sequence"
4916..5084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "inverted terminal repeat"
150..278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4840..4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /mote= "human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /mote= "hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note- "inverted terminal repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420..4835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                    2142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Burstein
                                                                                                                                                                             87.1%;
92.7%;
                                                                                                                                                                                                                                    A; 1902 C; 1909 G; 1991 T; 0 other;
                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ή
                                                                                                                                                                              Score 870.8; DB 22
Pred. No. 1.8e-261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B-domain deleted factor VIII"
                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lynch CM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B virus EnhI enhancer"
                                                                                                                                                                                            DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stepan
                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ¥,
                                                                                                                                                                                           Length 7944;
                                                                                                                                                                    21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>~</u>
                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                         They are
         4225
                                                                                                                  4105
                                                            4165
                                                                                                                                           60
```

1;

```
RESULT
AAN90654
В
                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                             ij
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
         Homo sapiens
                                                  Human Factor VIII:C;
                                                                        DNA encoding 740 Arg-1649 Glu human Factor VIII:C
                                                                                                                                AAN90654;
                                                                                                                                                         AAN90654 standard;
                                                                                                                                                                                                                          5006
                                    haemophilia A.
                                                                                                       26-JUN-1990
                                                                                                                                                                                                                                                                                                                                                                                     4826
                                                                                                                                                                                                                                                                               4946
                                                                                                                                                                                                                                                                                                                                 4886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4406
                                                                                                                                                                                                                                                     940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4226
                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                   σ
                                                                                                                                                                                                                     999cgacctttggtcgcccggcctcagtgagcgagcgagcgcag
                                                                                                                                                                                                                                    ccactccctctctgcgcgctcgctcgctcactgaggccgggcgaccaaaggtcgcccgac 939
                                                                                                                                                                                                                                                                                                                          gcacgggtgttgggtcgtttgttcggatccagatctaggaacccctagtgatggagttgg
                                                                                                                                                                                                                                                                                                                                          attgcaatagtgtgttggttttttgtgtgcggccgcaggaacccctagtgatggagttgg 879
                                                                                                                                                                                                                                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                        ccactccctctctgcgcgctcgctcgctcactgaggccgcccgggcaaagcccgggcgtc
                                                                                                                                                                                                                                                                                                                                                                               cctctactgactcgagcgagttcttctgaggggatcggcaataaaagacagaataaaac
                                                                                                                                                                                                                                                                                                                                                                                                 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9tggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            totgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 4465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                    (first entry)
                                                                                                                                                         DNA;
                                               Ad.RE.neo;
                                                                                                                                                         4275
                                               740 Arg-1649 Glu Factor VIII:C;
                                                                                                                                                                                                                       5051
                                                                                                                                                                                                                                                 985
                                                                                                                                                                                                                                                                          5005
                                                                                                                                                                                                                                                                                                                                                                                                                                    4825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
```

```
Ş
                                    В
                                                              Ω
                                                                                              В
                                                                                                                          20
                                                                                                                                                        Ъ
                                                                                                                                                                                    Qy
                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                       3786 tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                    3666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       When translated, Arg-740 of the carboxyl terminus of the H chain is directly bonded by a peptide bond to Glu-1649 of the amino terminus of L chain. It is used to transform animal cells so that they produce human Factor VIII:C. A prefd. expression vector is plasmid Ad.RE.neo. The expression vector has at least one promoter upstream of AAN90654. The transformants can constantly and continuously produce human Factor VIII:C in high yield on a commercial scale. The human Factor VIII:C molecules in the human blood plasma. It is useful for transformatic tractor VIII:C molecules in the human blood plasma. It is useful
                                                                                                                                                                                                                                                                                                                                        3546
                                                                                                                                                                                                                                                                                                                                                                                                  3486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Prodn. of recombinant human Factor-VIII-C - using animal cells transformed with a vector contg. the Factor VIII:C and a promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fig 1(1) - 1(13); ; 32pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sugiyama T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                      241
                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAP91165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-SEP-1988;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (KAGA ) CHEMO-SERO-THERAP (TEIJ ) TEIJIN LTD.
                                                                                                                                                                                                                                                                                                                                                61 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Sir
                                                                                                                                                                                                                                                                                                                                                                                                                             ш
                                                                                                                                                                   tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               treating
tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                             tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                             ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                       gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                             gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1989-078467/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             haemophilia A patients.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Masuda K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP; 1245 A; 941 C; 945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88JP-0085454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88EP-0114769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1..4275
/*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tajima
                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 790;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yonemura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G; 1144 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.4e-236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4275;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                           3845
                                                                                                                        360
                                                                                                                                                                                                                3725
                                                                                                                                                                                                                                                                         3665
                                                                                                                                                                                                                                                                                                                                     3605
                                                                                                                                                                                                                                                                                                                                                                                             3545
                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

0;

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3906
                                                                                                                                                                                                                                                                                                                                                                                                                             Human Factor VIII with B domain deleted cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAX88293 standard; DNA; 4629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4086
                                   This invention describes novel adenoviral vectors comprising at least one DNA sequence encoding a clotting factor (Factor IX or Factor VIII). The vectors of the invention have haemostatic activity. The vectors are useful for the treatment of hemophilia A or hemophilia B by gene therapy. This sequence represents human Factor VIII cDNA which has the B domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-SEP-1999
                                                                                                                                                                                                                                                                                        07-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                         Adenoviral vector; Factor VIII; Factor IX; clotting factor; treatment; haemostatic; haemophilia A; haemophilia B; gene therapy; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                      10-JUN-1993;
25-MAR-1994;
                                                                                                                                                                                                                                                               07-JUN-1995;
                                                                                                                                                                                                                                                                                                                 10-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                              Example 1; Column 53-58; 90pp; English.
                                                                                                                                      Adenoviral vectors useful for treating hemophilia
                                                                                                                                                                                                              (GENE-) GENETIC THERAPY INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \verb|cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cctctactga 4275
                                                                                                                                                                1999-457617/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                       Kaleko
                                                                                                                                                                                                                                      95US-0484891.
93US-0074920.
94US-0218335.
                                                                                                                                                                                                                                                                                        95US-0484891.
                                                                                                                                                                                         ĭ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4025
                                                    therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
```

Sequence 4629 BP; 1319

A; 1050 C;

1015

G; 1245

T; 0 other

```
RESULT
AAV23339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вp
                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                              В
В
                                                                                                                                                                                        80
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                               Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3807
                                                                                                                                                                                                                                                                                                                                                                                                                                                              4047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3627
                                                                                                                                                                    4407
                                                                                                                                                                                                                    4347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                  Human Factor-VIII gene lacking central B domain
                                                                                                          AAV23339
                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               سا
                                                                                                                               œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                         gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 3806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaagttggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                            cacacctgtggtgaactctctagaacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                             gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                               cctctactgactcgagcc 798
                                                                                                                                                                                                                              ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                    cctctactgagggtggcc
                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                {\tt cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc}
                                                                                                                                                                                                                                                                                                               gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                              totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
             blood clotting;
                                                            (first entry)
                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79.0%;
99.4%;
                                                                                                                                                                      4424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 790; DB 20;
Pred. No. 2.5e-236;
             human;
                                                                                                           BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
             synthetic gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 4629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                codon
                usage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3746
                                                                                                                                                                                                                                                                                                                                                                    4226
                                                                                                                                                                                                                                                                                                                                                                                                                    4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                     4286
                                                                                                                                                                                                                                                                       4346
                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                             720
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Mate
Best Local
Matches
      4073
                                                                                                                                      3953
                                                                     4013
                                                                                                                                                                                                     3893
                                                                                                                                                                                                                                                                     3833
                                                                                                                                                                                                                                                                                                                                    3773
                                                                                                                                                                                                                                                                                                                                                                                                   3713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This gene codes for a human Factor-VIII protein that lacks the central B domain (amino acids 760-1639) of the native protein. In a novel, claimed synthetic gene (see ANV23288), non-preferred or less preferred codons of the native gene are replaced by codons favored by highly expressed human genes to provide high-level expression in mammallan cells. The synthetic gene was assembled from 29 pairs of oligonucleotides (see ANV23340-97) which served as PCR templates. Synthetic genes of the invention (see also ANV23289-91) are used for production of recombinant proteins in mammalian cells at levels of at least 500% of those obtained using the natural genes. They can also be used in gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3653
                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4670 BP; 1325 A; 1072 C; 1036
                                                                                                      361
                                                                                                                                                                    301
                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 3; Fig 12; 92pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New synthetic eukaryotic gene(s) -
preferred codon(s) are replaced to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GEHO ) GEN HOSPITAL CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9812207-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match
tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
               tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                             tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat
                                                                                                                                              tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                            tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                             tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                               gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                             tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                            gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                            tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96US-0717294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97WO-US16639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 790;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in which non-preferred or less provide high level expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G; 1237 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 19;
2.5e-236;
nes 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 4670;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        as
 4132
                                  480
                                                                  4072
                                                                                                                                 4012
                                                                                                                                                                                                                                                               3892
                                                                                                                                                                                                                                                                                                                                                                                                                                                             3712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in
                                                                                                                                                                                                                                                                                                                               3832
                                                                                                                                                                                                                                                                                                                                                                                                3772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

Ω В Qγ 멍 Qy Д

Example 28;

Pages

the 210-213;

beta-domain 272pp;

deleted SQN English.

deletion

protein of human

δÃ В δõ Dр Š

В

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ఠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                              04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                                                                                                                                    Allen
De LA
                                                        New replication defective recombinant retro-viruses - which can be administered to provide long term systemic expression of therapeutic protein in blood, useful in, e.g. treating hyper-coagulable
                                                                                                                                                                                                                                                                                                                                                                                    haemophilia; thrombosis; hypercoagulable disorder; liver disease; human; hepatitis; thalassemia; phenylketonuria; Lesch-Nyhan syndrome; diabetes; cystic fibrosis; Duchenne's Muscular Dystrophy; hypercholesterolemi; hypopituitarism; adenine deaminase deficiency, HIV infection; anaemia; Guacher's syndrome; high blood pressure; Alzheimer's disease, autoimmune; inflammatory disease; factor VIII; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4193
                                                                                                                                                                                                      (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                 02-JUL-1997;
                                                                                                                                                                                                                                                                                                          08-JAN-1998
                                                                                                                                                                                                                                                                                                                                    WO9800541-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4133
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Replication defective; recombinant retrovirus; RRV; therapeutic protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human factor VIII beta-domain deleted SQN deletion cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAV19581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                  LΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                          1998-086966/08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccagagitgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctctactgactcgagcc 798
                                                                                                                                                                 JR,
VEGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cctctactgagggtggcc 4450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                     짇
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                AAW46246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard; cDNA; 4832
                                                                                                                                                     Lee
                                                                                                                                                              Barber JR, B
D, Depolonj,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                              97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                97WO-US11784
                                                                                                                                                  JR, Boder M, Chang SMW, olonj, Greengard J, Hsu Mittelstaedt DM, Prussal
                                                                                                                                                    Prussak
                                                                                                                                                 Hsu DC,
ussak CE,
                                                                                                                                                                         Chong
                                                                                                                                                                Ibanez CE;
                                                                                                                                                  'n;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        720
```

```
cc measurable level of the therapeutic protein being produced in the blood cc of the human for a period of at least 30 days after the administration of ct the RRV vector preparation. RRV's can be used for in vivo delivery of cc therapeutic protein to treat, e.g. haemophilia A, haemophilia B, cc thrombosis, hypercoagulable disorders, liver diseases such as hepatitis, cc disorders such as thalassemia, phenylketonuria, Lesch-Nyhan syndrome, cc severe combined immunodeficiency (SCID), cystic fibrosis, Duchenne's cc Muscular Dystrophy, inherited emphysema, familial hypercholesterolemia, cantitrypsin deficiency, Guacher's syndrome, anaemia, infections such as C HIV infection, high blood pressure, Alzheimer's disease, autoimmune or cinflammatory disease or graft versus host disease. RRV's are capable of cc surviving inactivation in human serum thereby allowing efficient gene cr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  preparation of replication defective recombinant retrovirus (RRV) expressing a therapeutic protein. The RRV preparation is resistant degradation by human complement and is capable of inducing long ter systemic expression of the therapeutic protein when administered systemic expression of the therapeutic protein when administered
                                                                                                                                                                                                                    Sequence 4832 BP; 1381 A; 1089 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             intravenously to a human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              vectors expressing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor VIII. This is used in the construction of recombinant retroviral
                                                      Local Sines 793;
                                                                                  Similarity
                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human factor VIII. The invention provides the
                                                                                     79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The long term systemic expression results in
                                                          0;
                                                                                     Score
Pred.
                                                          Mismatches
                                                                                                                                                                                                                           1055
                                                                                         790; DB 19
No. 2.6e-23
                                                                                                                                                                                                                           G; 1307 T;
                                                                                                                       Length 4832;
                                                                                                                                                                                                                              0 other;
                                                             Indels
                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     term
                                                          Gaps
60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
```

```
QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                             Ş
                                                                                                                              Вр
                                                                                                                                                         Qy
                                                                                                                                                                                              밁
                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
 멍
                           Qy
                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3716
                                                                                                                                                                                                                                                                                                                                                                                             3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3656 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
 4256
                                                                4196
                                                                                                                                 4136
                                                                                                                                                                                              4076
                                                                                                                                                                                                                                                               4016
                                                                                                                                                                                                                                                                                                                                3956
                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                481
                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                             301
                                  601
                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                              tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcagaagttctccagcctctacatctctcagttttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                               gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 4075
                                                                                                                                                                                                                                                                             tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                          tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                             tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
               gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 4135
                                                                                                                                                                                                                                                                                                                            tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat 4015
                                                                                tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                               tetgettaccageatgtatgtgaaggagtteeteateteeageagteaagatggeeatea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3775
                                                                                                                                                                                                                                                                                                                                                                                                  3955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
      4315
                                     660
                                                                                                                                   4195
                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT 1
AAV15338
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                    04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4316
                                                                                                                                                                                              Allen
De La
                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                  08-JAN-1998
                                                                                                                                                                                                                                                                                                WO9800542-A2
                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                  retrovirus; vector;
                                                                                                                                                                                                                                                                                                                                                                         Factor VIII; blood clotting; haemophilia A;
                                                                                                                                                                                                                                                                                                                                                                                         Human Factor
                                                                                                                                                                                                                                                                                                                                                                                                        20-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                       AAV15338
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV15338 standard; DNA; 4832
                                                                                                                                                                                        Jolly
                                                                                                                                                                                                                                                                  02-JUL-1997;
                                                                                                                                                                  P-PSDB; AAW44372.
                                                                                                                                                                                                                     (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661 cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                          WPI; 1998-086967/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctctactgagggtggcc 4453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             coagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga 4435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                               Vega
                                                                                                                                                                                        짇
                                                                                                                                                                                        Mittelstaedt DM,
                                                                                                                                                                                                       Barber JR,
                                                                                                                                                                                                                                                                                                                                                                                         VIII SQN deletion mutant DNA.
                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                        ber JR, Boder M, Chang SM,
Depolo NJ, Greengard J, H
telstaedt DM, Prussak CE,
                                                                                                                                                                                                                                    97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                                                                                                                                  97WO-US11785
                                                                                                                                                                                                                                                                                                              Location/Qualifiers 72..4445 /*tag= a
                                                                                                                                                                                                                                                                                                                                                                   human;
                                                                                                                                                                                                                                                                                                                                                                    SS
                                                                                                                                                                                                                                                                                                                                                                                                                                      ВP
                                                                                                                                                                                                 M, Chong
Hsu DC,
                                                                                                                                                                                          Respess
                                                                                                                                                                                                                                                                                                                                                                           gene therapy;
                                                                                                                                                                                                        ζ.
                                                                                                                                                                                                  Ibanez
                                                                                                                                                     which express
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4375
```

This DNA sequence includes a coding region for the B domain deletion mutant SQN (see AAW44372) of human Factor VIII. The SQN mutant is created by fusing Ser-743 to Gln-1638 of native Factor VIII (see AAW44373) to form a Ser-Gln-Asn (SQN) link between the A2 and A3 Factor VIII domains. When compared to plasmid-derived Factor VIII, the SQN deletion does not influence the in vivo pharmacokinetics, but the reduced size of the molecule appears to decrease proteolytic degradation. The invention relates to preparations of replication defective recombinant retrovirus (RV) compressing a B domain-deleted human Factor VIII protein, where the comprise B domain-deleted human factor VIII protein, where the compressing a B domain-deleted human second by human complement and is capable of inducing cong-term (at least 30 days and up to 6 months or longer post-injection) systemic expression of Factor VIII when New replication defective recombinant retroviruses - which domain-deleted human factor VIII or human factor IX for the treatment of haemophilia Claim 6; Page 174-175; 236pp; English. A2

```
RESULT 11
AAT69811
ID AAT698
XX
AC AAT698
XX
AC AAT698
XX
DT 10-AUG
XX
                                                                                                                                                     밁
                                                                                                                                                                                δÃ
                                                                                                                                                                                                               В
                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                     ДĎ
                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ДЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SS X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                     4436
              10-AUG-1997
                                            AAT69811;
                                                                        AAT69811 standard;
                                                                                                                                                                                                                 4376
                                                                                                                                                                                                                                                                                                                                      4256
                                                                                                                                                                                                                                                                                                                                                                                                 4196
                                                                                                                                                                                                                                                                                                                                                                                                                                                            4136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4016
                                                                                                                                                                                                                                                                            4316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3656
                                                                                                                                                                                   781
                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4832
                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                cctctactgagggtggcc
                                                                                                                                                                              cctctactgactcgagcc 798
                                                                                                                                                                                                       ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga 780
                                                                                                                                                                                                                                                                                  cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                     cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                              gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                              9t99actctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tactgettcateettaceaatatgtttgecacetggteteettcaaaagetegaet 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                           totgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 3835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP; 1381 A; 1089 C; 1055 G; 1307 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79.0%;
99.4%;
                                                                                                                                                   4453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 790; DB 19;
Pred. No. 2.6e-236;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 4832;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                           4435
                                                                                                                                                                                                                                                                                                                                  4315
                                                                                                                                                                                                                                                                                                                                                                                            4255
                                                                                                                                                                                                                                                                                                                                                                                                                                                       4195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                               Qy
         밁
                                  Q
                                                                  Вþ
                                                                                                                             Ъ
                                                                                                                                                        Qy
                                                                                                                                                                                           밁
                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                  Query Match
Best Local
       4411
                                                                  4351
                                                                                                                              4291
                                                                                                                                                                                           4231
                                                                                                                                                                                                                                                                                                                                                                A DNA molecule (AAT69811) codes for Factor VIII-dB695-HCII (AAW18670), a hybrid protein in which amino acids 712-736 of Factor-dB695 (Factor VIII de1868-1562) B-domain are replaced by amino acids 51-80 from the acidic region (and potential thrombin-binding site) of human heparin cofactor II (HCII). It was obtd. by PCR amplification (see also AAT69812-13) of the HCII acidic region from total liver cDNA, fusion to sequences encoding Factor VIII aa706-711 and aa737-743, and incorporation of the construct into plasmid pCIB-dB695. The hybrid protein, which can be expressed using gene therapy techniques, has increased procoagulant activity owing to the HCII acidic region, and can be used to treat blood construct in a formal techniques.
                                                                                                                                                                                                                                                                                                                           Sequence 5035 BP; 1484 A; 1127 C; 1110 G; 1314 T; 0 other
                                                                                                                                                                                                                                                                                                                                                         coagulation disorders such as haemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 16; Page 52-60; 96pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       donor anticoagulant or antithrombotic of coagulation disorders
                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hybrid Factor VIII with modified activity, comprises region from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1997-289291/26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Factor VIII-db695-HCII; heparin cofactor II; blood coagulation; blood clotting; procoagulant; anticoagulant; antithrombotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IMMO ) IMMUNO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  haemophilia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Factor VIII-dB695-HCII DNA
                                                                                                                                                           61
                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                    1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
   ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                            gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                          tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                             gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                        tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                    gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 4290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW18670.
                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene therapy; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95US-0558107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96WO-EP04977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= Factor VIII-dB695-HCII 2225..2314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers 35..5020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= heparin cofactor II region (aa51-81)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                  79.0%;
99.4%;
                                                                                                                                                                                                                                               Score 790; DB 10;
Pred. No. 2.6e-236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein

    useful

                                                                                                                                                                                                                                                                             Length 5035;
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for treatment
                                                                                                                                                                                                                                                  0
```

Gaps

0

4410

240

4350

```
멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
 PAR PER XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4771
                                                                                                                                                                                                                              osteopathic; antisickling; immunostimulant; gene therapy; collage; endothelial cell; peripheral blood; buffy coat cell; VEGF; PCR primer; vascular endothelial growth factor; bovine brain extract; haemophilia; Factor VIII; human; transgene; adenosine deaminase deficiency; ss; sickle cell anaemia; thalassemia; diabetes; alpha-antitrypsin deficiency; alzheimer's disease; brain disease; heart disease; immune system defect;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4891
                                                                                                                                                         WO200032750-A1
                                                                                                                                                                                                                                                                                                                          Hemostatic; antianemic; antidiabetic; nootropic;
                                                                                                                                                                                                                                                                                                                                                           DNA construct HSQ/eGFP for transforming endothelial cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA49231 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
              (MINU ) UNIV MINNESOTA.
(UYEM-) UNIV EMORY.
                                                              24-NOV-1998;
                                                                                             24-NOV-1999;
                                                                                                                           08-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781 cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 4530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 4890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 4770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cctctactgagggtggcc 5028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtggactctcttttttcagaatggcaaagtaaaggttttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 4830
                                                                                                                                                                                                                     fracture;
HEBBEL R P
                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                    osteoporosis.
                                                              98US-0109687
                                                                                             99WO-US28033
                                                                                                                                                                                                                                                                                                                                  neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 5010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4650
```

Query Match

Sequence 5094 BP; 1435 A; 1207 C; 1169 G; 1283 T; 0 other;

Length 5094;

```
cc enhanced green fluorescent protein coding sequence has been inserted.

CT TheDNA codes for (in order): the human Factor VIII (hfVIII) activation or peptide; the hfVIII Al domain, the hfVIII AZ domain, the first 5 amino code soft he SQ B domain linker peptide; an enhanced green fluorescent or protein (eGFP); the last 9 amino acids of the SQ linker peptide; the hfVIII (21 domain and the hfVIII CZ domain. Transgenic EC transduced in vitro code are useful for improving prosthetic implants. EC is also useful for companion and the hfVIII CZ domain. Transgenic EC transduced in vitro coding clotting disorders where indication or disease is associated companions of the activity of an enzyme. EC is also useful in gene continuate deficiency, sickle cell anemia, thalassemia, hemophilia, cc diabetes, alpha-anitrypsin deficiency, brain disorders such as cc alzheimer's disease, heart diseases, defects in immune system, for cc repairing bone fractures and to treat or prevent osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in contact with a collagen I coated surface, buffy coat cells obtained from peripheral mammalian blood in the presence of a culture medium containing vascular endothelial growth factor (VEGF) and free of bovine brain extract. EC are useful for treating hemophilla by introducing it into the blood stream of a mammal, so that an effective amount of pactor VIII protein is secreted in the blood stream of the mammal. This sequence represents a huamn factor VIII gene into which an analysis of the mammal of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Expanding population of endothelial cells useful to biocompatibilize implantable medical devices comprises contacting buffy coat cells with collagen I coated surface in culture medium comprising vascular endothelial growth factor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to a method for expanding the population of endothelial cells (EC) obtained from peripheral blood, by culturing,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hebbel RP, Lin Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (LOLL/) LOLLAR J S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fig 3; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lollar JS;
```

```
Qy
                                                                                                   Qy
                                                                                                                                         g
                                                                                                                                                                         Qy
                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best
                                                                                                                                                                                                                                                                                                                                                          4365
                                                                                                                                                                                                                                                                                                                                                                                                                                4305
                                                                                                                                                                                                                 4485
                                                                                                                                                                                                                                                                                    4425
                                 361
                                                                                                       301
                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                        tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                         tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                      tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                        tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                             ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                     gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                            gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 4364
tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                  gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                   tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                           tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79.0%; Score 790; DB 21; 100.0%; Pred. No. 2.7e-236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                 4604
                                                                                                                                                                                                                                                                                            4484
                                                                           4664
                                                                                                                                                                                                                      4544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

```
AAQ66615
ID AAQ6
XX AAQ6
AC AAQ6
AX Sequ
XX Sequ
XX Fact
KW Fibr
OS HOMC
XX WO94
XX GEN
PR 11-1
PR 11-2
PR 11-2
XX GEN
XX WPI;
DR P-P(
XX Nuc.]
PT POOT(

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
Prepn. of human factor VIII cDNA has been set forth in detail, US Patent No. 4,757,006 issued July 12, 1988 and in Toole et a
                                                                              Disclosure; Page 27-36; 61pp; English.
                                                                                                                                        Nucleic acid encoding porc
porcine and human-porcine
haemophilia
                                                                                                                                                                                                                                                     P-PSDB;
                                                                                                                                                                                                                                                                                                                                 Kaufman RJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                        13-NOV-1992;
14-SEP-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-OCT-1993;
                                                                                                                                                                                                                                                                                                                                                                                   (GEMY ) GENETICS INST INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-MAY-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9411503-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Factor VIII; haemostasis; haemophilia A; clotting cascade; fibrinogen; fibrin; thrombin; proteolytic enzyme; co-facto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence of human factor VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAQ66615 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                            1994-183504/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cctctactga 5094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9tggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9caagtggacttccagaagacaatgaaagtcacaggagtaactactcaggggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                        AAR55352
                                                                                                                                                                                                                                                                                                                              Pittman D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                                                                                                                                                                                                                                                                                                     92US-0976086.
93US-0121202.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93WO-US09438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1..7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA; 7056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                           porcine factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                מ
                                                                                                                                                                                                                                                                                                                              Rehemtulla
                                                                                                                                                                    chimeric
                                                                                                                                                                  factor
                                                                                                                                                                                                                                                                                                                              Þ
                                                                                                                                                                                                                                                                                                                              Wozney

    used to obtain

                                                                                                                                                         VIII for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 co-factor;
     al.,
                      e.g.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4844
```

```
Qy
                                                                     멍
                                                                                                     Qy
                                                                                                                                                 В
                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                  DЪ
                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  been replaced, in whole or in part, by analogous porcine factor VIII domains, and include, chimeric forms where the Al and/or A2 domains, in whole or in part, of the human factor VIII sequence have been replaced, in whole or in part, by the Al and/or the A2 domains of porcine factor VIII. Specifically provided are chimeric factor VIII sequences comprising the Al, A2, A3, B, C1 and C2 human domains as set forth in AAQ66615, where the Al and/or A2 domains, as well as other segments, such as the regions corresp. to the AA numbers 336-372, 336-740, 372-740, 700-740 and combinations of these regions have been replaced in whole or in part with porcine factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 7056 BP; 2232 A; 1517 C; 1491 G; 1816 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VIII sequences as set forth in AAQ66616 and AAR55353.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nature 312:312(1984). A recombinant clone contg. the nucleotide sequence in AAQ66615, designated as pSP64-VII, is on deposit at the ATTC under Accession No. ATCC 39812. Chimeric forms of factor VIII include those where various domains of the human factor VIII have
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity les 790; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      سا
ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                 tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                           cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                           gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                          gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                               gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                         tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                         tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99attcatct99gataaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                        tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 6326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 790; DB 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 7056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                     720
                                                                                                                                             6926
                                                                                                                                                                                                                              6866
                                                                                                                                                                                                                                                                                                            6806
                                                                                                                                                                                                                                                                                                                                                                                          6746
                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
```

```
RESULT 14
AAT310
XX
AAT3110
XX
AAT3110
XX
AC
AAT3110
XX
19-SEP
XX
Factor
XX
FIT mat_pe
FIT sig_pe
FIT sig_pe
FIT sig_pe
FIT sig_pe
FIT sig_pe
FIT sig_pe
FIT mat_pe
FIT mat_pe
FIT mat_pe
FIT mat_pe
FIT mat_pe
FIT sig_pe
FIT mat_pe
FIT mat_pe
FIT sig_pe
FIT sig_pe
FIT mat_pe
FIT mat_pe
FIT mat_pe
FIT sig_pe
FIT mat_pe
FIT mat_pe
FIT sig_pe
FIT mat_pe
FIT cos
CC CHAMOO
CC CAAMOO
CC Fackag
CC from sc
CC fashous
CC fackag
CC from sc
CC fackag
CC fackag
CC from sc
CC fackag

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                           Ş
                                                                                                                       Вþ
                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6987 ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga 7046
                                                                                                                       6376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A full-length cDNA clone (AAT31031) codes for human Factor-VIII (AAW00465), a trace plasma glycoprotein which acts as a cofactor in conjunction with Factor-TXA in the activation of Factor-X. Retroviral vectors comprising the full-length cDNA can be efficiently represented in the factor of the conjunction of the conj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Factor-VIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Factor-VIII full-length cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAT31031 standard; cDNA; 8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 8967 BP; 2841 A; 1898 C; 1833 G; 2395 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transduce cells either in vivo or ex vivo. Factor-VIII expressed from such transduced cells will be processed and transported in a fashion analagous to the expression product of a normal Factor-VIII gene. Retroviral particles harbouring such vectors will be useful in the gene therapy of haemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 3; Page 58-68; 86pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Retroviral vector directing expression of full length factor VIII used in the gene therapy and treatment of haemophilia A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1996-334010/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bodner M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CHIR ) CHIRON VIAGENE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-DEC-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W09621035-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          packaged into infectious retroviral particles. These may be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                               hes 793;
                                           61
                                                                                                                                                                                                   Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cctctactga 7056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cctctactga
tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                   gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW00465
                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chang S,
                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               retrovirus; vector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94US-0366851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            95WO-US16582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= b
167..7162
/*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= a
110..166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                               79.08;
99.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chi-Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D
                                                                                                                                                                                                                                                                       Score 790; DB 17;
Pred. No. 3.6e-236;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hsu D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               haemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     De
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Polo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Α;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                       Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0 other;
                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   therapy;
                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                               Gaps
                                                                                                                           6435
                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ť
                                                                                                                                                                                                                                                                               0;
```

```
RESULT 1
AAC875A
AAC875A
ID AAC85
XX AAC8
AC AAC8
XX A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6436 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7156
                                                                                                                                                                                                                                                                                                                                                                 Human factor VIII cDNA, SEQ ID NO:1.
                                                                                                                                                                                                                                                                                                                                                                                                                        13-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC87526 standard;
                                                                                    30-NOV-2000
                                                                                                                                                                                               Homo sapiens.
                                                                                                                                                                                                                                                   haemophilia; half-life;
                                                                                                                                                                                                                                                                                                       Factor VIII; human; A2 domain; C2 domain; LRP-mediated plasma clearance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                   receptor-dependent clearance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg\\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cctctactgagggtggcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cctctactgactcgagcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttaaatagttgcagcattgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   798
                                                                                                                                                                                                                                                         SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ΒP
                                                                                                                                                                                                                                                                                receptor-independent clearance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
```

24-MAY-2000; 2000WO-US14111

24-MAY-1999;

99US-0135847.

```
Ş
                                                                            В
                                                                                                                 Qγ
                                                                                                                                                         Db
                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                      Дb
      망
                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
      6796
                                                                                                                                                           6676
                                                                                                                                                                                                                                      6616
                                                                                                                                                                                                                                                                                                                   6556
                                                                                                                                                                                                                                                                                                                                                                                                6496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to human factor VIII mutants comprising an amino acid substitution at one or more positions in the A2 domain and/or an amino acid substitution at one or more positions in the C2 domain.

The invention also encompasses a factor VIII mutant which lacks a B domain (AAB48842). The factor VIII mutants have an increased half-life in the bloodstream. The A2 domain mutants exhibit reduced LRP-dependent (receptor dependent) clearance of factor VIII, while C2 domain mutants have reduced receptor independent clearance. The hyperbolic independent clearance of factor VIII, while C2 domain mutants have reduced receptor independent clearance. The invention also relates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor VIII proteins, and nucleotides encoding them, are useful for treating haemophilia. RAP, LRP-binding RAP mutants or fragments, and nucleic acids encoding them may also be used in the treatment of haemophilia, in combination with a mutant factor VIII protein or DNA of hemophilia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Factor VIII mutants having increased half-life useful for treating hemophilia, comprise one or more amino acid substitutions in the A: and/or C2 domain of factor VIII -
                                          421
                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to a method of using RAP (receptor associated protein), a protein which inhibits LRP (low density lipoprotein related protein)-mediated ligand internalisation, to increase the half-life of factor VIII. The mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 41; Page 86-101; 121pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-025163/03.
P-PSDB; AAB48843.
                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (AMNA-) AMERICAN NAT RED CROSS.
                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   e invention. The invention provides means of increasing the half-life factor VIII by reducing its clearance from plasma. The present quence represents cDNA encoding human factor VIII.
                    tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                        tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                  ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                              gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                   tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat
                                                                                                                                                                        tttaaatagttgcagcatgccattgggaattggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                   tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                             ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 6435
                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     toagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 6495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BP; 2841 A; 1898 C; 1833 G; 2395 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 790; DB 22;
Pred. No. 3.6e-236;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ã2
                                      480
                                                                                                                                                                                                                                  6675
                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                               6615
                                                                                                                                                                                                                                                                                                                                                                                            6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
ρ
                                                                밁
                                                                                              Qy
                                                                                                                             Ъ
                                                                                                                                                          Qγ
                                                                                                                                                                                            DЪ
                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                            6976
                                                                                                                                                             661
                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                   totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                               ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                   gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                               cctctactgactcgagcc
                                                                                                                                            cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                         gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                          | 9tggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
cctctactgagggtggcc
                                                              ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                            cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                    gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                 798
                                                                                                                                                                                         7035
                                                                                                                             7095
                                                                                                                                                                                                                                                        6975
                                                                                              780
                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                     6915
                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                           720
```

Search completed: January 17, Job time: 12579 sec 2002, 16:34:34

•				
•				
•				
		•		

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database
  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  788.4
634.8
634.8
634.8
634.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length:
length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Issued_Patents_NA:*
1: /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/2/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
5: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/2/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
US-09-740-211-14_COPY_4000_4999
1000
1 gatcaarmer
  1100.0
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
1955.4
19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         January 17, 2002, 16:27:40; Search time 118.22 Seconds (without alignments) 1915.733 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDENTITY_NUC Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 351203 seqs, 113238999 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 4.5
Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gatcaaggtggatctgttgg......gcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000000000
  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gapext 1.0
                       US-09-470-618-14
US-09-364-862-14
US-09-470-618-13
US-09-470-618-13
US-09-484-891-7
US-08-484-891-7
US-08-717-294-41
US-08-717-294-1
US-08-76-594-1
US-08-76-594-1
US-08-76-8514-1
US-08-76-8514-1
US-08-76-8514-1
US-08-76-8514-1
US-08-76-70-778-1
US-08-76-70-778-1
US-08-76-70-778-1
US-08-683-839B-2
5171844-1
US-08-61-503-5
US-08-670-7078-5
US-08-670-7078-5
US-08-670-7078-5
US-08-613-5
US-08-70-7078-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                           Patent No.
Sequence
Sequence
Sequence
                                                                                    Sequence
Sequence
                                                                                                                                                                      Sequence
Sequence
                                                                                                                                                                                                                                                    Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                           1, Appli
2, Appli
2, Appli
2, Appli
3, Appli
5, Appli
4, Appli
5, Appli
6, Appli
6, Appli
7, Appli
7, Appli
8, Appli
9, 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14, Appl
14, Appl
13, Appl
13, Appl
7, Appli
41, Appl
     5,55,7
  Appli
Appli
Appli
Appli
Appli
```

_											
?	DP DP	₽ Qy	Qy Db	Qу	Ma Ma	Σ.	 o		יייייי סים	RES US-	0000000
2	181 4180	121 4120	61 4060	1 4000	ery st I tche	TYPE: DNA ORGANISM: FEATURE: OTHER INFO -09-470-618	EARLIER FILI EARLIER APPL EARLIER APPL EARLIER FILI EARLIER FILI RUMBER OF SE SOFTWARE: PA SEO ID NO 14	FILE CURRE CURRE EARLI	atent ENERA APPLI APPLI TITLE	SULT 3-09-47 Sequen	20000000000000000000000000000000000000
+			д д		S OC M	TH: URE URE 0-6:	ER 1	RAT L	CAN:	0-63 Ce 3	594.8 594.8 594.8 594.8 1164.6 1164.6 1151.6 1151.6 1151.6 1151.6 1151.6 1151.6
†	ggati ggati	gaagtgg gaagtgg		gatca gatca	0 S	499 NA M: A : : NFOR 18-1	APPI APPI APPI APPI APPI APPI APPI	PPI APPI APPI	INVI 1: CO 1: CO 1	14.	4888886444646666
2	tcatct	Eggca 	agaagtto agaagtto	aggt aggt	mil	9 rti rti MAT	LING DATE PLICATION LING DATE PLICATION LING DATE LING DATE SEQ ID NC PATENTIN	REFERENCE: ENT APPLICAT ENT FILING C	O. 6200560 INFORMATION: NT: Couto, Li NT: Colosi, I F INVENTION: F INVENTION:	Appl	59 59 59 116 116 113 113 113 113
,) tgg	igac igac	Cctc Cctc	9 – 9	arit Onse	ficia ION:	ATE DATE NO NO	AVI ION ATE	ON:	ica	450000004440440000000000000000000000000
ָּבְּי	.gggataaaacaca ggataaaacaca	gcagacttatcg; cagacttatcg;	tetecageetetacate	gatctgtt gatctgtt	100 Y 100 rvative	al s Des	R FILING DATE: 1999-07-30 R APPLICATION NUMBER: 60/1 R FILING DATE: 1999-03-24 R APPLICATION NUMBER: 60/1 R FILING DATE: 1998-10-20 OF SEQ ID NOS: 15 OF SEQ ID NOS: 1.00	FERENCE: Avigen-04082 APPLICATION NUMBER: US FILING DATE: 1999-12-2 APPLICATION NUMBER: 09	inda B. Peter C Adeno- by Tar	tion US	7032 4334 64034 6402 6409 6909 6909 6585 4999 6585 11933 11933 11933 11933
5	aca - aca	agga agga	cta Cta	99c;	0.0%	equenc cripti	-07-30 R: 60/ R: 60/ -03-24 R: 60/ -10-20	282 -12- R: (Ass	200	43434833344344
++	aatatt aatatt	cgaggaaattco cgaggaaattco	catctct [][]]] catctct	tggcaccaatgattat tggcaccaatgattat), Sc), Pr	of	25, 04,	9/4	ssociated et Cells	AL] /09470618	US-08-09-09-09-09-09-09-09-09-09-09-09-09-09-
ancantott	tttaaccct	ttccactggaacc tccactggaacc	teteteagtttate cteteagtttate	attattcac attattcac	ore 1000; ed. No. 0; Mismatches	Artificial	974 994	70,618	1 Vectors	ALIGNMENTS	224-867- 70-707A 70-707A 707-601- 707-601- 707-601- 707-294- 704-196- 70-618- 70-70- 70-
cacataa	ctccaattattgct ctccaattattgct	gaaccttaatggtcttctttggcaatgt 	ttatcatcatgt tatcatcatgt	ttcacggcatca ttcacggcatca	DB 4;	1 Sequence	,		for		
a ort	attgct attgct	gtette gtette	tatagt atagt		Length Indels	e:			Express		
gatgggct	tcgataca tcgataca	tttggca tttggca	tatagtcttgatgggaa atagtcttgatgggaa	aagacccagggtgcccg aagacccagggtgcccg	499	Synthetic	•		ion of		Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence
tataa	acatccg	aatg aatg	e66£ 		•• ••	>tic			Fac		
_			4 1		Gaps		•		tor		1 3 3 8 3 8 3 8 3 8 5 5 5 5 5 5 5 5 5 5 5
200	240 4239	180 4179	120 4119	60 4059	ω				VII		Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli

Ş

241 tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300

0;

```
RESULT 2
US-09-364-862-14
                         APPLICANT: COUCT, Linda B.

APPLICANT: COLOSI, Peter C.

TITLE OF INVENTION: ADENO-ASSOCIATED VECTORS

TITLE OF INVENTION: BY TARGET

TITLE OF INVENTION: CELLS

FILE REFERENCE: AVIGEN-03743

CURRENT APPLICATION UNMBER: US/09/364,862

CURRENT FILING DATE: 1999-07-30

EARLIER APPLICATION NUMBER: 60/125,974

EARLIER FILING DATE: 1999-03-24

EARLIER FILING DATE: 1999-03-24

EARLIER FILING DATE: 1998-10-20

NUMBER OF SEO ID NOS: 14

SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                            Sequence 14, Applica Patent No. 6221349 GENERAL INFORMATION:
            SEQ
                                                                                                                                                                                                                                                                                                                                                                                 4960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4480
             IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4240
                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
NO 14
TH: 4999
                                                                                                                                                                                                                                                                                                                                                                                             cctcagtgagcgagcgagcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                            gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccggggctttgcccgggcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                           gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9tggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                              cctcagtgagcgagcgcgcagctgcctgcaggacat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttgttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttaaattagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14, Application o. 6221349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                             US/09364862
                                                                                                                                                                                                              VECTORS
                                                                                                                                                                                                              FOR
                                                                                                                                                                                                              EXPRESSION
                                                                                                                                                                                                              QF
                                                                                                                                                                                                              FACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                               4959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                              VIII
```

```
; TYPE: DNA; ORGANISM: Artificial; FEATURE: ; OTHER INFORMATION: IUS-09-364-862-14
               Ş
                                                                       δÃ
                                                                                                       В
                                                                                                                                  δÃ
                                                                                                                                                                 밁
                                                                                                                                                                                           Qy
                                              밁
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                          Дδ
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local
                                                4840
                                                                                                                                                                                                                            4660
                                                                                                                                                                                                                                                                                       4600
                                                                                                                                                                                                                                                                                                                                                4540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4240
                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ш
gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                     cctctactgactcgagcctaataaaggaaatttatttcattgcaatagtgtgttgttt
                                                                                                                                                                             ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                     cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                  gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaaagactcctt
                                                                                                                                                                                                                                                                                                                                                           tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                           tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                      cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt
                                                                                                                                                                 ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                    gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                        gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttaaatagttgcagcatgccattgggaattggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1000;
                                                                                                                                                                                                                         cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                        gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1000;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of Artificial Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                             4899
                                                                          900
                                                                                                       4839
                                                                                                                                                                  4779
                                                                                                                                                                                                                            4719
                                                                                                                                                                                                                                                                                     4659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                               4599
                                                                                                                                                                                                                                                                                                                                                                                                          4539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4119
                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                         뫄
                                                                                                                                                                                                      Вþ
                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-470-618-13
Ş
                                                                              Q
                                                                                                                                                             Š
                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 13, Appli
Patent No. 6200560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIPLE OF INVENTION: Adeno-Associated Vectors for Expression of Factor VIII TIPLE OF INVENTION: by Target Cells FILE REFERENCE: Avigen-04082 CURRENT APPLICATION NUMBER: US/09/470,618 CURRENT FILING DATE: 1999-12-22 EARLIER APPLICATION NUMBER: 09/364,862 EARLIER FILING DATE: 1999-07-30 EARLIER FILING DATE: 1999-07-30 EARLIER FILING DATE: 1999-07-30 EARLIER FILING DATE: 1999-03-24 EARLIER FILING DATE: 1999-03-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -09-470-618-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER APPLICATION NUMBER: 60/104,994
EARLIER FILING DATE: 1998-10-20
NUMBER OF SEQ ID NOS: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: Description of Artificial Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 11933
                                                                                                                                                                                                                                                                                         4215
                                                                                                                                                                                                                                                                                                                                                                        4155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4035
                                                                                                                         4335
                                                                                                                                                                                                                                                                                                                                                                                                                                                       4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3975 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 4034
                                                                                                                                                                                                          4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                   421
                                                                                                                                                                  361
                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                             241
    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cctcagtgagcgagcgagcgcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cctcagtgagcgagcgcgcgcagctgcctgcaggacat 4999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg 4959
                                                                                                                                          tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                             tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                            tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                    ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
  gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                      tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat 4334
                                                                                                                                                                                                                                                                                       tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 4154
                                          tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                         tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 4394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 979; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/09470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95.4%;
97.9%;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 954.4; DB 4; Pred. No. 4.3e-310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 11933,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                           4274
                                                                                                                                                                                                                                                                                                                                                                          4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۳
```

```
QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-364-862-13
   δÃ
                                       В
                                                                     QY
                                                                                                                                                                                                      US-09-364-862-13
                                                                                                                                                                                                                                                                                         SOFTWARE: Paten
SEQ ID NO 13
LENGTH: 11933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 13, Application US/09364862 Patent No. 6221349
                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/364,862
CURRENT FILING DATE: 1999-07-30
EARLIER APPLICATION NUMBER: 60/12,974
EARLIER FILING DATE: 1999-03-24
EARLIER APPLICATION NUMBER: 60/104,994
EARLIER FILING DATE: 1998-10-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: ADENO-ASSOCIATED VECTORS FOR EXPRESSION OF FACTOR VIII TITLE OF INVENTION: BY TARGET TITLE OF INVENTION: CELLS FILE REFERENCE: AVIGEN-03743
                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Couto, Linda B. APPLICANT: Colosi, Peter C.
                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                       OTHER INFORMATION: Description
                                                                                                                                                                                                                                                         ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4455
                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4930 cctcagtgagcgagcgagcgcagctgcctgcaggacat 4969
                                         3975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
   61
                                                                                                                              Local Similarity
                                                      1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctcagtgagcgagcgcgcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 4634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg 4929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctctactgactcgagaataaaagatcagagctctagagat----ctgtgtgttggttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctctactgactcgagcctaataaaggaaatttattttcattgcaatagtgtgttggttt 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                     gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 4034
                                                                                                               979;
                                                                                                                                                                                                                                                                                                                             PatentIn Ver. 2.0
                                                                                                               Conservative
                                                                                                                                95.48;
97.98;
                                                                                                               0;
                                                                                                                                Score 954.4; DB 4; Pred. No. 4.3e-310;
                                                                                                                                                                                                                         of Artificial Sequence:
                                                                                                               Mismatches
                                                                                                                                                 Length
                                                                                                                                                                                                                          synthetic
                                                                                                                 5;
                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                   ۲.
```

TITLE OF INVENTION: NUMBER OF SEQUENCES:

Treatment of

Hemophilia

```
US-08-484-891-7
: Sequence 7, Application
: Patent No. 5935935
: GENERAL INFORMATION:
                                                                                                                                                                                     Qy
                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                               Qу
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
    APPLICANT:
APPLICANT:
APPLICANT:
TITLE OF INV
                                                                                                                                                                4930
                                                                                                                                                                                                                        4870
                                                                                                                                                                                                                                                                               4810
                                                                                                                                                                                                                                                                                                                                                                                              4695
                                                                                                                                                                                                                                                                                                                                                                                                                                                    4635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4035
                                                                                                                                                                                          961
                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                         cctcagtgagcgagcgcgcgcagctgcctgcaggacat 4969
                                                                                                                                                                            cctcagtgagcgagcgagcgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                          gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                                                                                                                                                                                                                                                   cctctactgactcgagcctaataaaggaaatttatttcattgcaatagtgtgttgttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc 720
                                                                                                                                                                                                                                                                                                                                                                                          ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                       cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                  gctcgctcactgaggccgggcgaccaaaggtcgcccgacgcccgggctttgcccgggcgg
                                                                                                                                                                                                                                                                           tttgtgtgcggccgcaggaacccctagtgatggagttggccactccctctctgcgcgctc
                                                                                                                                                                                                                                                                                                                                  cctctactgactcgagaataaaagatcagagctctagagat----ctgtgtgttggttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 4514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 4334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tttaaatagttgcagcatgccattgggaatggaggtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 4154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INVENTION:
                                                                                        Application US/08484891
                Connelly, Sheila
Kaleko, Michael
Smith, Theodore
    Adenoviral
                                              Sheila
    Vectors
                                                                                                                                                                                                                     4929
                                                                                                                                                                                                                                                                            4869
                                                                                                                                                                                                                                                                                                                                    4809
                                                                                                                                                                                                                                                                                                                                                                                           4754
                                                                                                                                                                                                                                                                                                                                                                                                                                                   4694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
Ş
                              В
                                                      ρy
                                                                                    밁
                                                                                                             Qγ
                                                                                                                                                                     Q
                                                                                                                                             밁
                                                                                                                                                                                                                              δÃ
```

```
밁
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-484-891-7
                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 793; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                     3807
                                                                                                                                                                                                                                     3747
                                                                                                                                                                                                                                                                                                       3687
                                                                                                                                                                                                                                                                                                                                                                         3627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/218,335
FILING DATE: 25 MAR-1994
FILING DATE: 25 MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 08/074,920 FILING DATE: 10-JUN-1993 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE MEDIUM TYPE: 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY:
                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER: 24,025
REFERENCE/DOCKET NUMBER: 271010-273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 07-JUN CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM: MS-DOS SOFTWARE: WordPerfect 5.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Roseland
                                                                                                                                                                                                                                                                                                                                                                                   1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                               tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                 tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                   GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                   ggattcatctgggataaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                   GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                     gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                     TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                       tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                    GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Olstein, Elliot M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4629 bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6 Becker Farm Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201-994-1744
                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Factor VIII cDNA
B domain deleted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM PS/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carella, Byrne,
Cecchi, Stewart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201-994-1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            inch diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/484,891
                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 790; DB 2;
Pred. No. 4.4e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bain,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Olstein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gilfillan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4629;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                  3986
                                                                                                   3926
                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                   3806
                                                                                                                                                                                                                                                                                                     3746
                                                                                                                                                                                                                                                                                                                                                                    3686
                                                                                                                                                                   3866
                                                                                                                                                                                                                                                                                                                                                                                                     60
```

0;

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-717-294-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 41, Application Patent No. 6114148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
          INFORMATION FOR SEQ ID NO: 41: SEQUENCE CHARACTERISTICS: LENGTH: 4670 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4167
                                                                                TELEPHONE: 617-428-0200
                                                                                                                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 2.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
ADDRESSEE: Clark & Elbing LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: HIGH LEVEL TITLE OF INVENTION: PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: SEED, BRIAN APPLICANT: HAAS, JURGEN
                                                                                                                                                  FILING DATE:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                             STREET:
CITY: F
                                                                                                         NAME: Elbing, Karen L
REGISTRATION NUMBER: 35,
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                      APPLICATION NUMBER: US/0
FILING DATE: 20-SEP-1996
                                                                                                                                                                                                                                                                                           MEDIUM TYPE:
COMPUTER: II
                                                    TELEX:
                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                              OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                STATE:
                                                                 TELEFAX: 617-428-7045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCTACTGAGGGTGGCC 4424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA 4406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC 4346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                             Boston
                                                                                                                                                                                                                                                                                                                                       02110
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                 MA
                                                                                                                                                                                                                                                                                                                                                                                           176 Federal Street
                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                           IBM Compatible
                                                                                                                                                                                                                                                                                                           Diskette
                                                                                                                                                                                                                                                                               Sod
                                                                                                                                                                                                                                                                                                                                                                                                                                      110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/08717294
                                                                                                                                                                                                                                      US/08/717,294
                                                                                                                       35,238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXPRESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4046
```

```
; STRANDEDNESS: don
; TOPOLOGY: linear
; MOLECULE TYPE: CDN2
US-08-717-294-41
                                                                                                            QΥ
                                                                                                                                                          Q
                                                                                                                                                                                 밁
                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                   Дb
                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                    QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                    Q
                                             밁
                                                                Ş
                                                                                         В
                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3653
 4433
                                                                                                                                                                                   4193
                                                                                                                                                                                                                                                                            4073
                                                                                                                                                                                                                                                                                                                       4013
                                                                                                                                                                                                                                                                                                                                                                                                                                                            3833
                                                                                          4313
                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                    781 cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                          toagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                    tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTCTACTGAGGGTGGCC 4450
                                                                                                                                                                                   TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                            tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                               GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                           gcaagtggacttocagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                            TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                      tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT 3832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA 3772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       h 79.0%;
Similarity 99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 790; DB 3; L
Pred. No. 4.4e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4670;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                               4432
                                                                                                                                         4312
                                                                                                                                                                                      4252
                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                               4132
                                                                                                                                                                                                                                                                                                                          4072
                                                                                                                                                                                                                                                                                                                                                                      4012
                                                                                                                                                                                                                                                                                                                                                                                                                   3952
                                                                                                                                                                                                                                                                                                                                                                                                                                                               3892
                                                                                             4372
                                                                                                                 720
                                                                                                                                                                660
                                                                                                                                                                                                             600
                                                                                                                                                                                                                                 4192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

US-08-882-083-1
; Sequence 1, Application
; Patent No. 5869292
; GENERAL INFORMATION:

US/08882083

APPLICANT:

VOORBERG,

Johannes

```
Qy
      밁
                                                                    QΥ
                                                                                                                                      В
                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; NAME/KEY:
; LOCATION:
US-08-882-083-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: ISACSON, John P.
REGISTRATION NUMBER: 3,715
REFERENCE/DOCKET NUMBER: 304;
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEPAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: 1:
      4591
                                                                                                                                         4531
                                                                                                                                                                                                                                                                            4471
                                                                                                                                                                                                                                                                                                                                                                                                           4411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 5035 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 08 FILING DATE: 13-NOV-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                        361
                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Wa
CITY: Wa
STATE: D
COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                     | left | 
                                                                                                                                                                     tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                          ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg 240
TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                       tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                    GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 4290
                                                                                                                                      TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                     TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Foley & Lardner
3000 K Street, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 08/558,107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/08/882,083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 790; DB 2;
Pred. No. 4.6e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30472/212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4410
                                                                                                                                  4590
                                                                                                                                                                                                                                                                     4530
                                                                                                                                                                                                                                                                                                                                                                                                    4470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
; LOCATION: US-08-558-107-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-558-107-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/08558107 Patent No. 5910481
                                                                                                                                                        TELEFAX: (202)672-5399
TELEX: 904136
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                               ZIP: 20007-5109

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                            NAME: ISACSON, John P.
REGISTRATION NUMBER: 33,715
REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                               FILING DATE: 13-NOV-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: ISACSON, John P.
                                                    FEATURE:
                                                                                                                      SEQUENCE CHARACTERISTICS
LENGTH: 5035 base pai:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 3000 K St.
CITY: Washington
STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED ACTIVITY NUMBER OF SEQUENCES: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: VOORBERG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5011 CCTCTACTGAGGGTGGCC 5028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: USA
ZIP: 20007-5109
                                  NAME/KEY:
                                                                     TOPOLOGY:
                                                                                                                                                                                           TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | gtggactctcttttttcagaattggcaaagtaaaggtttttcaggggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 600
                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: Foley & Lardner
                                                                     linear
                                                                                   single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Johannes
                                                                                                                                                                                                                                                                                                                                                    US/08/558,107
                                                                                                                                                                                                                                                  30472/212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4710
```

```
Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
           .. .. .. .. .. .. .. .. ..
                                                                                                             RESULT 9
US-09-243-539-1
                                                                                                                                                                              Ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                밁
                                                                           Sequence 1, Application US/09243539
Patent No. 6130203
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                              4771
                                                                                                                                                                                                                                                                                                                                                                                         4711
                                                                                                                                                                                                                                                                                                                                                                                                                                       4651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4231
                                TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                       4951
                                                                                                                                                                                                                                                   4891
                                                                                                                                                                                                                                                                                                4831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4591
                                                                                                                                                          5011
                                                                 APPLICANT: VOORBERG, Johannes
                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                781
STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
         ADDRESSEE: Foley & Lardner STREET: 3000 K Street, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ш
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactcacgggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tttgcacccaactcattatagcattcgcagcactcttcgcattggaggttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT 4410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATGATGTATAGTCTTGATGGGAA 4350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                          CCTCTACTGAGGGTGGCC
                                                                                                                                                                      cctctactgactcgagcc 798
                                                                                                                                                                                                                  ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga
                                                                                                                                                                                                                                                                cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                           gtggactctcttttttcagaatggcaaagtaaaggtttttcaggggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                        tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                       CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                    CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                              TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           793;
Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 790; DB 2; Le
Pred. No. 4.6e-255;
             Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                    4950
                                                                                                                                                                                                                                                                                                 4890
                                                                                                                                                                                                                                                                                                                                                                                            4770
                                                                                                                                                                                                                                                                                                                                                                                                                                        4710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4470
                                                                                                                                                                                                                                                                                                                                              483C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                           20
                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                        밁
                                   В
                                                        Ωy
                                                                              В
                                                                                                  Q
                                                                                                                          В
                                                                                                                                               2
                                                                                                                                                                      밁
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-243-539-1
             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                 4351
                                                                                                                                                                                                                                                                                                             4291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                     4411
                                                                                                                                                                                                                                                                                      121
              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                        793;
```

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
TELEX: 904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4231 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 13-NOV-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                               STATE: I
COUNTRY:
ZIP: 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 0
FILING DATE: 13-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: ISACSON, John P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa
gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                     tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                     tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                              tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                                                                                                                                                      ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                 TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                  TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                  GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RY: USA
20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5035 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
35..5017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/09/243,539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33,71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08/558,107

    Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30472/212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 790; DB 3;
Pred. No. 4.6e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 5035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

4410 180

240

4470

480 4650 420 4590

4710

540

4530

300

360

4290

60

0

```
ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/08276594A Patent No. 5693499
                                                                                                                                                                                                     PILING DATE: 24-SEP-1992

PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 243262/1991
FILING DATE: 24-SEP-1991
ATTORNEY,AGENT INFORMATION:
NAME: WEGNER, HATOLd C.
REGISTRATION NUMBER: 25.258
REFERENCE/DOCKET NUMBER: 74129/195/A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -08-276-594A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM COMPATION
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/950,191
FILING DATE: 24-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: MASUDA, Kenichi
TITLE OF INVENTION: PROCESS FOR PREPARING HUMAN COAGULATION
TITLE OF INVENTION: FACTOR VIII PROTEIN COMPLEX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4831
                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5011 CCTCTACTGAGGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4711 GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: Wa
CITY: Wa
STATE: D
COUNTRY:
                                TOPOLOGY:
NAME/KEY:
                                                STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cctctactgactcgagcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9t9gactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington
                                                                                                                                     904136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D.C
                                                                                 6999 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3000 K Street, N.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TAJIMA, Yoshitaka
SUGAWARA, Keishin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YONEMURA, Hiroshi
                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                  18-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/276,594A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N.W.,
                                                                                                                                                                                                          74129/195/AOPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         660
```

```
20
                                                                                                                                            В
                                                                                                                                                                  δÃ
                                                                                                                                                                                             멍
                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                       US-08-121-202-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; LOCATION: US-08-276-594A-1
Sequence 1, Application Patent No. 5563045 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 79.0%; Score 790; DB 1; L Best Local Similarity 100.0%; Pred. No. 5.8e-255; Matches 790; Conservative 0; Mismatches 0;
                                                                                          6990
                                                                                                                                                                                                                                                                                                  6750
                                                                                                                                                                                                                                                                                                                                                                                                    6630
                                                                                                                                                                                                                                                                                                                                                                                                                                                      6570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6330 GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6270
                                                                                                       781 cctctactga
                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCTACTGA 6999
                                                                                                                                                         CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                          cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                              gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                  tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                            CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                            gtggactctctttttcagaatggcaaagtaaaggtttttcaggggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                           US/08121202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 6999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                            6989
                                                                                                                                                                    780
                                                                                                                                                                                             6929
                                                                                                                                                                                                                                               6869
                                                                                                                                                                                                                                                                                                6809
                                                                                                                                                                                                                                                                                                                                                   6749
                                                                                                                                                                                                                                                                                                                                                                                                    6889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6269
                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
```

APPLICANT:
APPLICANT:

Pittman, Debra Rehemtulla, Alnawaz

```
Qy
                                                                                                                                                                                     Вþ
                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                               Db
                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                             В
                                                                                        Q
                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  us-08-121-202-1
 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Meinert, M. C.
REGISTRATION NUMBER: 31,544
REFERENCE/DOCKET NUMBER: GI 5195A
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)876-1210 X8574
TELEPAX: (617)876-5851
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query. Match
                                                                                                                                                                                                                                                                                                                                                                        6267
 6627
                                                                                                                                                                                     6447
                                                                                                                                                                                                                                                 6387
                                                                                                                                                                                                                                                                                                            6327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Kaufman, Randal J.
TITLE OF INVENTION: CHIMERIC PROCOAGULANT PROTEINS
NUMBER OF SEQUENCES: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: CI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                              121
                              361
                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: 87 Cambridge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/08/121,202 FILING DATE: 14-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                       1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 79.0%; Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                         tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                     GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                     ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                  GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT 644
                                                                                                                                                                                                                                                                 gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttctttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                        GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG 6326
                                                                          tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                  790;
                                                                                                                         TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA 6566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ΜA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: Legal Affairs, Genetics Institute, 87 CambridgePark Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7056 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
1..7053
                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 790; DB 1; L; Pred. No. 5.8e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 7056;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                               6626
                                                                                                                                                                                      6506
                                                                                                                                                                                                                     240
```

0;

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-366-851A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1,
Patent No. !
                                                                                                                                             TELEFAX: (619) 452-2616
INFORMATION FOR SEQ ID NO: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                              CLASSIFICATION: 514
ATTORIEY/AGENT INFORMATION:
NAME: Chambers, Daniel M.
REGISTRATION NUMBER: 34,561
REFERENCE/DOCKET NUMBER: 9300
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619) 452-1288
                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: Call
STATE: Call
COUNTRY: U.S.A.
7TP: 92121
7TP: 92121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6807
                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/366,851A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6687
                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Retroviral Delivery of Full Length Factor VIII NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7047 CCTCTACTGA 7056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6987
                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 8967 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Chang, Steven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 toacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 11055 Ro
                                                                TOPOLOGY:
                                                                                TYPE: nucleic acid
STRANDEDNESS: both
                                                                                                                                                                                                                                                                                                     FILING DATE:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
               NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcaggggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08366851A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11055 Roselle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       De Polo, Nicolas J.
Hsu, David Chi-Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bodner, Mordechai
                                                                unknown
110..7165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Viagene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inc.
                                                                                                                                                    1:
                                                                                                                                                                                                                     930049.438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6866
```

```
RESULT 13
US-07-864-004B-3
                                                                                                                                                                                                             밁
                                                                                                                                                                               20
                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-366-851A-1
                                                                    Sequence 3, Application US/07864004B Patent No. 5364771
GENERAL INFORMATION:
APPLICANT: LOllar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Hum
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                          6976
                                                                                                                                                                                                                                                                                                                                                                                 6916
                                                                                                                                                                                                                                                                                                                                                                                                                                      6856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6496 GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT 6555
                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                           tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                             cctctactgactcgagcc
                                                                                                                                                                                                                         ccagagttgggtgcaccagattgccctgaggatggaggttctggggctgcgaggcacagga 780
                                                                                                                                                                                                                                                                              cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTCTACTGAGGGTGGCC
                                                                                                                                                                                                            CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                 CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                                                                       GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT 7035
                                                                                                                                                                                                                                                                                                                                     | 9tggactctcttttttcagaatggcaaagttaaaggttttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                  gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaagtggcagacttatcgagggaaattccactggaaccttaatggtcttctttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT 6735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79.0%;
99.4%;
 Hybrid Human/Porcine Factor VIII
                                                                                                                                                                                798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 790; DB 1,
Pred. No. 6.8e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 8967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6675
                                                                                                                                                                                                                                                                                                                                                                                                                                     6915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
```

```
Qy
                                                              Вþ
                                                                                          Q
                                                                                                                                                         δÃ
   B
                                                                                                                             뭥
                                                                                                                                                                                         В
                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                      US-07-864-004B-3
                                                                                                                                                                                                                                                                                                                     Best Local Similarity Matches 793; Conserv
                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                              6537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRAGMENT TYPE: N-terming ORIGINAL SOURCE:
ORGANISM: Homo sapien
                                                                                                                                                                                         6477 TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                      6417 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: EM
TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/864,004B
FILING DATE: 07 APRIL 1992
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 30309
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYPOTHETICAL: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                  241
                                                                                                                                           121 gaagtggcagacttatcgaggaaattccactggaaccttaatggtcttcttttggcaatgt 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 1100 F
CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                          61 tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature (Domain Structure)
LOCATION: 5001 . . 7053
OTHER INFORMATION: /note= "Equivalent to
OTHER INFORMATION: domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE TYPE: Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER:
                                                                                                                                                                                                                                                                        1 gatcaaggttggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                             GAAGTGGCAGACTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTCTTTGGCAATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Kilpatrick & Cody
1100 Peachtree Street
                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature (Domain Structure)
1 . . . 2277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA
                                                                                                                                                                                                                                                                                                                                     79.0%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                               /note= "Equivalent to domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note= "Equivalent to the
                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMU106
                                                                                                                                                                                                                                                                                                                                     Score 790; DB 1; Pred. No. 6.8e-255;
                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                    'Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                 A1 - A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A3-C1-C2
                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                       ..
                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                         6536
   6716
                                                                6656
                                                                                             240
                                                                                                                                                                                                                                                        6476
                                                                                                                                                                                                                                                                                       60
```

```
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-251-937A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3, Application Patent No. 5583209 GENERAL INFORMATION:
INFORMATION FOR SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6717
                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Porcine
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6837
             TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-815-6367
TELEFAX: 404-815-6555
                                                                                                            APPLICATION NUMBER: US 07/864,004 FILING DATE: 07-APR-1992 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                              FILING DATE: 31-MAY-CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                  STATE: G
                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                             NAME: Pratt, John S.
REGISTRATION NUMBER: 29,476
REFERENCE/DOCKET NUMBER: EM
                                                                                                                                                                                              APPLICATION NUMBER: US/0
FILING DATE: 31-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Kilpatrick & Cody STREET: 1100 Peachtree Street
                                                                                                                                                                                                                                                  SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                   CITY: Atlanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cctctactgactcgagcc 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGCTACCTTCGAATTCACCC 7136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cacacctgtggtgaactctctagacccaccgttactgactcgctaccttcgaattcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGCAGTCAAGATGGCCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT 6896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TACTGCTTCATCCTACTTTACCAATATGTTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTCTACTGAGGGTGGCC 7214
                                                                                                                                                                                                                                                                                                                                     30309
                                                                                                                                                                                                                                                                                                                                                  Georgia
Y: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08251937A
                                                                                                                                                                                                                                                    PatentIn Release #1.0,
                                                                                                                                                                                                                 US/08/251,937A
                                                                EMU106DIV
                                                                                                                                                                                                                                                  Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , 7016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
```

```
Ωy
                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QY
                   ρ
                                              밁
                                                                    Qy
                                                                                               맑
                                                                                                                   Qy
                                                                                                                                              B
                                                                                                                                                                     Q
                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-251-937A-3
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRAGMENT TYPE: N-terminal ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                             6597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 9009 base par
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature (Domain Structure) LOCATION: 5001 7053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg 60
                                                                                                                                                                                                                                                                                                                                                                                          gtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt 660
                                                                                                                                                                                              tactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaagctcgact
                                                                                                                                                                                                                                                                                                                                          tcagaaqttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
GTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                              totgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                             tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaagagtggct
                                                                                                                                                                                                                                               TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                          tttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagatgcacagat
                                                                                                                                                                                                                                                                                              TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                         tttgcacccaactcattatagcattcgcagcactcttcgcatggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                             TCAGAAGTTCTCCAGCCTCTACATCTCTCAGTTTATCATCATGTATAGTCTTGATGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              793;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9009 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "Equivalent to the
domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 790; DB 1;
Pred. No. 6.8e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Structure)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A3-C1-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A1-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                6536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6476
  7076
                                                                                                                                                                                                                                                                                                                                                                                                6596
                                                  7016
                                                                          600
                                                                                                   6956
                                                                                                                                                  6896
                                                                                                                                                                           480
                                                                                                                                                                                                  6836
                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                   6776
                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                 6716
                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                               6656
                                                                                                                                                                                                                                                                                                                                                                        240
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-212-133A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Applic
Patent No. 5663060
                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 07/86.

FILING DATE: 07-APR-1992
ATTORNEY_AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,284
REFERENCE/DOCKET NUMBER: EMU,
TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-572-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 9009 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                         MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435 PRIOR APPLICATION DATA:
                                                   FEATURE:
                                                                                                                  FEATURE:
                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                             ORIGINAL SOURCE:
                                                                                                                                                                                                                                                             ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: Hybrid Human/Animal Factor VIII NUMBER OF SEQUENCES: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Lollar, John S. APPLICANT: Runge, Marschall S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7197 CCTCTACTGAGGGTGGCC 7214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7077
                                                                                                                                                               NAME/KÉY:
LOCATION:
LOCATION: 1..2277
OTHER INFORMATION:
                                                                                                                               OTHER INFORMATION: /r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Atlanta
STATE: Georgia
COUNTRY: US
                                                                OTHER INFORMATION:
                                                                                 NAME/KEY: misc_feature (Domain Structure) LOCATION: 1 . . . 2277
                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: sing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/2
FILING DATE: March 11, 1994
                                 NAME/KEY:
                                                                                                                                                                                                               TISSUE TYPE:
                                                                                                                                                                                                                              ORGANISM:
                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cctctactgactcgagcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08212133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Kilpatrick & Cody
100 Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                        404-572-6555
                                                                                                                                                               misc_feature (Domain Structure)
5125 . . . 7053
                                                                                                                                                                                                                                                             N<sub>O</sub>
                                 Domain
                                                                                                                                                                                                                            Homo sapien
                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                             CDNA
                                                                                                                                                                                                                                                                                                                         single
                                                                                                                               /note= "Equivalent to the
domain"
   /note=
                                                                /note= "Equivalent to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US 07/864,004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/212,133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  798
                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMU/76677
"cDNA encoding human factor
                                                                A1-A2 domain."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7136
```

```
ŞQ
                                                                                                                  В
                                                                                                                                                                         δô
                                                                                                                                                                                                                                       Ър
                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Watches 793; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; OTHER INFORMATION: US-08-212-133A-1
                                                                                                                                                                                                                                                                                                                                                            7017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6477
                                                                                                                                                                                                                                       7077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6417 GATCAAGGTGGATCTGTTGGCACCAATGATTATTCACGGCATCAAGACCCAGGGTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 gatcaaggtggatctgttggcaccaatgattattcacggcatcaagacccagggtgcccg
                           cctctactgactcgagcc
                                                                                                                                                    ccagagttgggtgcaccagattgccctgaggatggaggttctgggctgcgaggcacagga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     totgottaccagcatgtatgtgaaggagttcctcatctccagcagtcaagatggccatca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcagaagttctccagcctctacatctctcagtttatcatcatgtatagtcttgatgggaa 120
                                                                                                                                                                                                                                       CACACCTGTGGTGAACTCTCTAGACCCCACCGTTACTGACTCGCTACCTTCGAATTCACCC
                                                                                                                                                                                                                                                                      gcaagtggacttccagaagacaatgaaagtcacaggagtaactactcagggagtaaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaaagagtggct 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | left | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTCTACTGAGGGTGGCC
                                                                                                                  CCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTGGGCTGCGAGGCACAGGA
                                                                                                                                                                                                                                                                                                                                                      GTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAGGGAAATCAAGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                     gtggactctctttttcagaatggcaaagtaaaggtttttcagggaaatcaagactcctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGCATGGAGTTGATGGGCTGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACTACTCAGGGAGTAAAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAATCCAAAAGAGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCTCCTTCAAAAGCTCGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAAGCAATATCAGATGCACAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttgcacccaactcattatagcattcgcagcactcttcgcattggagttgatgggctgtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCAATTATTGCTCGATACATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ggattcatctgggataaaacacaatatttttaaccctccaattattgctcgatacatccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79.0%;
                                                          798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 790; DB 1;
Pred. No. 6.8e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 9009;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                            780
                                                                                                                                                                                                                                       7136
                                                                                                                                                                                                                                                                                                                                                         7076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7016
                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6476
                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
```

Search completed: January 17, Job time: 12398 sec

2002,

16:28:08

•			
		.•	
τ.			

```
Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic - nucleic search,
                                                                                                                                                  Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
           O
                              O
                                                                                                                                        ö
                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB seq
506
449.2
446.4
398.8
350.8
350.8
220.4
217.4
2217.4
193.4
                                                                                                                   573.8
                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length: 0
length: 2000000000
                                                                                                                                        Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    January 17, 2002, 14:58:55; Search time 3755.78 Seconds (without alignments)
 44.6
39.9
35.1
28.0
21.7
20.1
19.4
19.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11351937 seqs, 5372889281 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-740-211-14_COPY_4000_4999
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 4.5
Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gatcaaggtggatctgttgg.....cgcagctgcctgcaggacat 1000
                                                                                                                                                                                                                                                                                                                                                                     em_estov:*
em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                     em_estpl:*
em_estba:*
                                                                                                                                                                                                                                                                                                                                                                                                                          em_estom: *
                                                                                                                                                                                                                                                                                                                                                                                                                                       em_estin: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                 em_esthum: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_estfun:*
                                                                                                                                                                                                                                                                              em_gss_fun:*
em_gss_hum:*
em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                            em_estro:*
                                                                                                                                                                                                                                      em_gss_other:*
                                                                                                                                                                                                                                                em_gss_rod:*
em_gss_vrt:*
                                                                                                                                                                                                                                                                                                                                                          gb_est1:*
                                                                                                                                                                                                                                                                      em_gss_pro:*
                                                                                                                                                                                                                                                                                                                          gb_gss:*
                                                                                                                                                                                                                                                                                                                                    gb_htc:*
                                                                                                                                                                                                                                                                                                                                               gb_est2:*
                                                                                                                                        Length
                                                                                             692
720
815
                                943
482
515
639
401
444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     using sw model
                                                                                                                                         В
 ij
                               BE650938
AV748467
BI067808
BE847128
AW489638
                                                                                   AU135340
BG818325
            AA184901
BE852200
                                                                                                                   BG700655
 AW446518
                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (without alignments)
2861.131 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22703874
                                                                                   AL601022
AU135340
BG818325
                                                                                                                                        Description
                                                               BE650938
AV748467
                               BI067808 pgfln.pk0
BE847128 uw22b11.y
AW489638 UI-M-BH3-
                                                                                                                    BG700655
                       AA184901
                                                                                   602682272
DKFZp313G
DAU135340
602780212
            l mt93e12.r
) uw22b11.x
                                                               0I-M-BH3-
7 AV748467
                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                  RESULT
BG700655
LOCUS
                                                                 FEATURES
                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C
                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                         JOURNAL
                                                       source
```

45	44	43	42	41	40	39	38	37	36	ω 5	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	μ ω
0	0	-	2	2			5	5	5	σ.	.7		9	٥	120.6				.51	.51	12		N	N	13		31.	32.	36.	36.	58.	9
-	۳	<u></u>	۲.	۲.	۲.	Ľ	۲.	۲.	٠.	۳		۳.	Ν.		12.1	2			2	2	2	2	ν.		ω.	ω.	ω	ω	ω.	w •	5	9.
N1	Δ	S	~	S	က	J	\mathbf{L}	\vdash	(J)	8	w	σ	Q	\vdash	613	7	(J)	g.	0	7	S	9	77	ω	ū	4	9	-	O)	4	N	w
11	10	11	11	11	11	11	10	11	11	11	10	11	10	11	10	11	11	11	10	11	11	11	11	11	10	11	10	11	11	10	10	10
6541	8129	7639	6795	5467	0556	9084	8440	4269	1656	7612	0884	7628	7585	15489	AA512671	40915	08648	24989	55413	24601	24239	84898	25116	91160	17322	17513	32455	64173	30280	57703	55261	5683
065410 pgfln.p	381295 60127117	976390 60284667	167957 60177569	154670 60290465	105565 60289170	090843 mac11h0	284409 60108758	242699 6023555	16565 60166736	176124 60233795	208846 mw75a01.	176281 60233815	575850 AL575850	154893 60290288	AA512671 vg39g02.r	409154 60296147	086480 H3126F11	249890 60299599	55 4 133 ur38e08	246010 60235883	242396 6023541	848985 uw01f02.	251160 60299436	911604 601663	173222 ud63a12.	75139 60233745	324553 mr92d06	41736 pgllc.pk	302800 6020326	.577036 AL57703	613 AL5526	56831 UI-M-BH

ALIGNMENTS

```
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Miklos Palkovits, M.D., Ph.D.
cDNA Library Preparation: Michael J. Brownstein (NHGRI), Shiraki
Toshiyuki and Piero Carninci (RIKEN)
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
cDNA Library Arrayed by: The I.M.A.G.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BG700655.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG700655 692 bp
602682272F1 NIH_MGC_95
                                                                                                                          High quality sequence stop:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 692)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BG700655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                             NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, M
                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        numan .
/organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:4815208"
/clone_lib="NIH_MGC_95"
/tissue_type="hippocampus"
                                                                                                         .692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:13970214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A EST 07-MAY-2001 sapiens cDNA clone IMAGE:4815208 5',
                                                                                                                                                                                                                                                                                                                                                                                                                 Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                 Gene Collection (MGC)
                                                                                                                                                                                                                                  be
```

```
ACCESSION
VERSION
                                                                                                                                            RESULT
AL601022
                  SOURCE
                                 KEYWORDS
                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                    691 T 691
                                                                                                                                                                                                                                                        759 t 759
                                                                                                                                                                                                                                                                                                                             699
                                                                                                                                                                                                                                                                                                                                                                  571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGCTACCTTCGAATTCACCCCCAGAGTTGGGTGCACCAGATTGCCCCTGAGGATGGAGG
                                                                                                                                                                                                                                                                                                          ctcgctaccttcgaattcacccccagagttgggtgcaccagattgccctgaggatggagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCAGGGAAATCAAGACTCCTTCACACCTGTGGTGAACTCTTAGACCCACCGTTACTGA
                                                                                                                                                                                                                                                                                                                                                                              ttcagggaaatcaagactccttcacacctgtggtgaactctctagacccaccgttactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aataatccaaaagagtggctgcaagtggacttccagaagacaatgaaagtcacaggagta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tetcettcaaaagetcgaettcaeetccaagggaggagtaatgeetggagaeetcaggtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcaatatcagatgcacagattactgcttcatcctactttaccaatatgtttgccacctgg 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    atggagttgatgggctgtgatttaaatagttgcagcatgccattgggaatggagagtaaa 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTATTGCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATAATCCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTA 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTCCTTCAAAAGCTCGACTTCACCTCCAAGGGAGGAATAATGCCTGGAGACCTCAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAATATCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGGAGTTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      attattgctcgatacatccgtttgcacccaactcattatagcattcgcagcactcttcgc 280
                                                               720 bp mRNA
DKFZp313G1439_r1 313 (synonym: hlcc2) Homo
DKFZp313G1439_5', mRNA sequence.
AL601022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    597;
                                   EST
Homo sapiens
                                                    AL601022.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="organ: brain; Vector: pBluescriptk (modified pBluescript Ks+); Site_1: BamHI; Site_2: Sall-Xhol (gtcgag); Oligo-dT primed using primer 5'-TTTTTTTTTTTTVN-3', size-selected for average insert size 2.5 kb and normalized to ROT 5. This is a primary library enriched for full-length clones and constructed using the Cap-trapper method (Carninci, in preparation). Library constructed by M. Brownstein (NIMH/NHGRI, National Institutes of Health). Note: this is a NIH_MGC Library." a 165 c 173 g 172 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.4%;
99.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 573.8;
No. 2.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .3e-158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 11;
                                                                                                      sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                      cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  692;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               270
                                                                                                                                                                                                                                                                                        690
                                                                                                                                                                                                                                                                                                                                                             630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ν
```

B

Q

δÃ В Qy Вþ δÃ B δÃ

밁

밁 δÃ

8 В

밁

FOCUS

В 20 В δÃ 밁 δã

Š

```
Q
  밁
                                                                             밁
                                                                                                             Qy
                                                                                                                                                          밁
                                                                                                                                                                                          QY
                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNT
  482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                      524 actcagggagtaaaatctctgcttaccagcatgtatgtgaaggagttcctcatctccagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              344 atatcagatgcacagattactgcttcatcctactttaccaatatgtttgccacctggtct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                         agtcaagatggccatcagtggactctcttttttcagaatggcaaagtaaaggtttttcag
GGCTGCGAGGCACAGGACCTCTACTGA
                  ggctgcgaggcacaggacctctactga 790
                                                                                             taccttcgaattcacccccagagttgggtgcaccagattgccctgaggatggaggttctg
                                                                                                                                                                            ggaaatcaagactccttcacacctgtggtgaactctctagacccaccgttactgactcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                 aatccaaaagagtggctgcaagtggacttccagaagacaatgaaagtcacaggagtaact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccttcaaaagctcgacttcacctccaagggaggagtaatgcctggagacctcaggtgaat
                                                                             TACCTTCGAATTCACCCCCAGAGTTGGGTGCACCAGATTGCCCTGAGGATGGAGGTTCTG
                                                                                                                                                        GGAAATCAAGACTCCTTCACACCTGTGGTGAACTCTCTAGACCCACCGTTACTGACTCGC
                                                                                                                                                                                                                                     AGTCAAGATGGCCATCAGTGGACTCTCTTTTTCAGAATGGCAAAGTAAAGGTTTTTCAG
                                                                                                                                                                                                                                                                                                                  ACTCAGGGAGTAAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAGC
                                                                                                                                                                                                                                                                                                                                                                                               AATCCAAAAGAGTGGNTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTTCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATATCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No s1 sequence available. This clone (DKFZp313G1439) is available at the RZPD in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequenced by Qiagen (Hilden/Germany) within the cDNA sequencing consortium of the German Genome Project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This is the 5' sequence of the clone insert Clone from S. Wiemann, Molecular Genome Analysis, German Research Center (DKFZ); Email s.wiemann@dkfz- heidelberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIPS
Am Klopferspitz 18a D-82152 Martinsried, Germany
This is the 5' sequence of the clone insert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
Contact: Duesterhoe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 720)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Please contact the RZPD: Ressourcenzentrum, Berlin- Charlottenburg, GERMANY; Email: clor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Duesterhoeft, A., Lauber, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Charlottenburg, GERM
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host="DH10B"
//note="Vector: PTriplEx2; Site_1: Sf1IA; Site_2: cDNA-collection"
186 c 166 g 189 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="DKF2p313G1439"
/clone_lib="313 (synonym: hlcc2)"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Duesterhoeft A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 50.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                et al.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 506; DB 10;
Pred. No. 2.4e-138;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mewes, H.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cum, Heubnerweg
clone@rzpd.de.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gassenhuber, J. and Wiemann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 720;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               heidelberg.de;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Berlin.
6, 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SfilB;
                                                                             481
                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                             241
```

0;

```
Q
                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rocus
                                                                                                                           멍
                                                                                                                                                ρy
                                                                                                                                                                                    망
                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                        QΨ
                                                           밁
                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AU135340
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                     341
                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                  281
                                                                                                                                                                                                                                                                                                                152
452
                             521
                                                            392
                                                                                                                                                                                                                                                                                                                                  221 attattgctcgatacatccgtttgcacccaactcattatagcattcgcagcactcttcgc 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                  ATTATTGCTCGATACATCCGTTTGCACCCAACTCATTATAGCATTCGCAGCACTCTTCGC
                                                                                                                        gcaatatcagatgcacagattactgcttcatcctactttaccaatatgtttgccacctgg 400
                                                                                                                                                                                                                                                     ATGGAGTTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAAATGGAGAGTAAA
                                                                                                                                                                                                                                                                   atggagttgatgggctgtgatttaaatagttgcagcatgccattgggaatggagagtaaa
              aataatccaaaagagtggctgcaagtggacttccagaagacaatgaaagtcacaggagta
GCAATATCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTTGCCACCTGG
                                                            AATAATCCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                          454; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: genomics@hri.co.jp
HRI human cDNA project; 5'- & 3'-end one pass sequencing: Helix
Research Institute; cDNA library construction: Department of
Virology, Institute of Medical Science, University of Tokyo, and
Helix Research Institute.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 815)
Ota,T., Nishikawa,T., Suzuki,Y., Ishii,S., Saito,K., Kawai,Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AU135340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Helix Research Institute
1532-3 Yana, Kisarazu, Chiba 292-0812, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genomics Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Takao Isogai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HRI human cDNA project 
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yamamoto,J., Wakamatsu,A., Nakamura,Y., Nagai,T., Sugano,S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AU135340.1 GI:10995879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Isogaı,T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81-438-52-3952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81-438-52-3951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:9606"
/clone="pLACE1001786"
/clone_lib="pLACE1"
/tissue_type="placenta"
/note="Vector: pME18SFL3"
a 207 c 204 g 197 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLACE1 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        44.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             815 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 449.2; DB 10;
Pred. No. 1.5e-121;
0; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA clone PLACE1001786 5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           815;
                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                  340
   511
                                                              451
                                                                                                                                                                                         331
                                                                                                                                                                                                                                                      271
                                                                                                                                                                                                                                                                                                                  211
                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
BG818325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                               밁
                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
В
                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 447;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             343 aatatcagatgcacagattactgcttcatcctactttaccaatatgtttgccacctggtc 402
                                                                                                                                                                                                                                                                                                                                                                                                                                          403 tccttcaaaagctcgacttcacctccaagggaggagtaatgcctggagacctcaggtgaa 462
242
                            583 cagtcaagatggccatcagtggactctcttttttcagaatggcaaagtaaaggtttttca
                                                                                                                                                                      523 tactcagggagtaaaatctctgcttaccagcatgtatgtgaaggagttcctcatctccag
                                                                                                                                                                                                                                                                                                             463 taatccaaaagagtggctgcaagtggacttccagaagaccaatgaaagtcacaggagtaac
                                                                                                                                                                                                                                                                          122 TAATCCAAAAGAGTGGCTGCAAGTGGACTTCCAGAAGACAATGAAAGTCACAGGAGTAAC
                                                                                                                                   182 TACTCAGGGAGTAAAATCTCTGCTTACCAGCATGTATGTGAAGGAGTTCCTCATCTCCAG
                                                                                                                                                                                                                                                                                                                                                                                                          62 TCCTTCAAAAGCTCGACTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 AATATCAGATGCACAGATTACTGCTTCATCCTACTTTACCAATATGTTTGCCACCTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    agcagtcaagatggccatcagtggactctcttttttcagaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCAGTCAAGATGGCCATCAGTGGACTCGCTACCTTCGAATT
CAGTCAAGATGGCCATCAGTGGACTCTTTTTTCAGAATGGCAAAGTAAAGGTTTTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: cgapbs-r@mail.nih.gov

Tissue Procurement: David N. Louis, M.D.

Tissue Procurement: David N. Louis, M.D.

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can

found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

plate: LLAM10824 row: h column: 03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG818325.1 GI:14165912
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG818325 943 bp mRNA
602780212F1 NCI_CGAP_Brn67 Ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 943)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG818325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  High quality sequence stop:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NIH-MGC http://mgc.nci.nih.gov/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /lab_host="DH10B (T1 phage-resistant)"
/note="Organ: brain; Vector: pCMV-SPORT6; Site_1:
/note="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="IMAGE:4915634"
/clone_lib="NCI_CGAP_Brn67"
/tissue_type="anaplastic oligodendroglioma with 1p/19q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44.68;
99.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 446.4; DB 11
Pred. No. 1.1e-120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     629.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sapiens cDNA clone IMAGE:4915634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 943;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Site_1: NotI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oligo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
          301
                                                                          642
                                                                                                                                                                                                              582
                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                 522
                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

```
BE650938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gggctgcgaggcacaggacctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGCTGCGAGGCACAGGACCTCTACTGA 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTACCTTCGAATTCACCCCCAGAGTTGGGTGGACCAGATTGCCCTGAGGATGGAGGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ctaccttcgaattcacccccagagttgggtgcaccagattgccctgaggatggaggttct 762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BE550938 482 bp mRNA EST 06-UI-M-BH3-asm-g-04-0-UI.rl NIH_BMAP_M_S4 Mus musculus UI-M-BH3-asm-g-04-0-UI 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA Library Preparation: M.B. Soares Lab Clone distribution: Researchers may obtain BMAP cDNA clones from RESEARCH GENETICS. I should be noted that Bento Soares is generating a small number of additional specialized non-redundant arrays of BMAP cDNAs whose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       National Institute of Mental Health 6001 Executive Blvd. Room 7N-7190.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collaborative arrangements 
Seq primer: M13 Reverse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20892-9643, USA
Tel: 301 443 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 availability will be considered under appropriate and limited
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Chin, H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 482)
Bonaldo, M.F., Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BE650938.1 GI:9976762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Normalization and subtraction: two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 443 1706
301 443 9890
//dev_stage="70-32" days"
//dev_stage="70-32" days"
//dev_stage="70-32" days"
//lab_host="DH10B (Life Technologies)"
//note="vector: pm7T3D-Pac (Pharmacia) with a modified
//no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mEST@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Res. 6 (9), 791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="UI-M-BH3-asm-g-04-0-UI"
/clone_lib="NIH_BMAP_M_S4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7N-7190, MSC 9643, Bethesda,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        approaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus
```

```
RESULT
AV748467
                                               COMMENT
                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481 GG 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       593 gg 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361 CAATGGTTGCAAGTGGACTTACAAAAGACAATGAAAGTCACTGGAATAATAACCCAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gagtggctgcaagtggacttccagaagacaatgaaagtcacaggagtaactactcaggga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gcacagattactgcttcatcctactttaccaatatgtttgccacctggtctccttcaaaa 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gctcgacttcacctccaagggaggagtaatgcctggagacctcaggtgaataatccaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACACAAATCACTGCCTCATCCTACTTCACCAACATGTTTGCTACTTGGTCTCCTTCACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggctgtgatttaaatagttgcagcatgccattgggaatggagagtaaagcaatatcagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TATATCCGTTTGCACCCCACTCATTCTAGCATCCGTAGTACTCTTCGCATGGAGTTGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | learned to the content of the cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTCGACTTCACCTCCAGGGAAGGACTAATGCCTGGCGACCTCAGGTGAATGATCCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCTGTGATTTAAACAGTTGCAGCATACCATTGGGAATGGAAAGTAAAGTAATATCAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCAATGTGGACTCATCTGGGATTAAGCATAATAGTTTTAATCCTCCAATTATTGCTCGA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ggcaatgtggattcatctgggataaaacacaaatatttttaaccctccaattattgctcga 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             430;
                                                                                                         Song,H., Peng,Y., Gu,Y., Yang,Y., Gao,G., Xiao,H., Xu,X., Li,N., Qian,B., Liu,F., Qu,J., Gao,X., Cheng,Z., Xu,Z., Zeng,L., Xu,S., W., Tu,Y., Jia,J., Fu,G., Ren,S., Zhong,M., Lu,G., Ye,M., Zhang, Han,Z., Chen,Z., Hu,R. and Chen,J. Homo sapiens NPC library cDNA clones
Unpublished (2000)
Contact: Qinghua Zhang
Shanghai Institute of Endocrinology, Rui-Jin Hospital
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AV748467 515 bp
AV748467 NPC Homo sapiel
AV748467
AV748467.1 GI:10906315
                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 515)
                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   remaining single-stranded circles. The remaining single-stranded circles (subtracted library) was purified by hydroxyapatite column chromatography, converted to double-stranded circles and electroporated into DHIOB bacteria (LifeTechnologies) to generate the NIH_BMAP_M_S4 library. This procedure has been previously described (Bonaldo, Lennon and Soares, Genome Research 6:791-806, 1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NPC Homo sapiens cDNA clone NPCAXA05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            102 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 398.8; DB 10
Pred. No. 9.8e-107;
0; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 482;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                 Xu,S., Gu
Zhang,Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    292
```

```
RESULT
BI067808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                      SOURCE
                                                                                                                                                                                                                                     DEFINITION
                                                                                           KEYWORDS
                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        221
                                                                                                                                                                                                                                                                                                                                             470
                                                                                                                                                                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            atggtcttctttggcaatgtggattcatctgggataaaacacaatatttttaaccctcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gcaatatcagatgcacagattactgcttcatcctactttaccaatatgtttgccacctgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                atggagttgatgggctgtgatttaaatagttgcagcatgccattgggaatggagagtaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      attattgetegatacatecgtttgeacceaactcattatagcattcgeagcactcttge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGGTCTTCTTTGGCAATGTGGATTCATCTGGGATAAAACACAATATTTTTAACCCTCCA
                                                                                                                                                                                                                                                                                                                                                            aataatccaaaagagtggctgcaagtggacttccagaagacaatgaaagtcacaggagta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTACTTAAGGAGTA----CTCTTCTTACCAGCATGTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                  AATAATCCAAAAGAGTGGCTTCAAGTGGACTTTCAGAAGACAATGNGTCACA-NGAAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTCCTTCAAAAGCTCGACTTCACCTTCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tctccttcaaaagctcgacttcacctccaagggaggagtaatgcctggagacctcaggtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGAGTTGATGGGCTGTGATTTAAATAGTTGCAGCATGCCATTGGGAATGGAGAGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chinese
351 Guo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           197 Rui-Jin II Road, Shanghai
Tel: 86-21-64370045(ex.663332)
Fax: 86-21-64743206
Gallus gallus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
Phasianinae; Gallus.
                                                                                                                                           BI067808 639 bp mRNA EST 15-JUN-2001 pgfin.pk008.h22 normalized chicken fat cDNA library Gallus gallus cDNA clone pgfin.pk008.h22 5' similar to gi|6679733 ref|NP_032003.1| coagulation factor VIII; Factor VIII [Mus musculus | sp|006194 [FAB_MOUSE COAGULATION FACTOR VIII PRECURSOR | PROCOAGULANT CONPEONENT) pir|A47004 coagulation factor VIII precursor - mouse gb|AAA37385.1| (L05573) coagulati, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mbshi@ms.stn.sh.cn
This clone is available at Shanghai Hematology Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                        chicken
                                                                                                            BI067808.1 GI:14475330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      National Human Genome Center
Shoujing Road, Zhangjiang Hi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XhoI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="pituitary"
/dev_stage="Adult"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="NPCAXA05"
/clone_lib="NPC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Vector: pBluescript sk(-); Site_1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       114 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35.1%;
95.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shanghai 200025, P. R. China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 350.8; DB 10; Pred. No. 1.5e-92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       131 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nter at Shanghai
g Hi- Tech r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tech Park, Pudong.
                                                                                                                                                                                                                                                                                                                                                 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Site_2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
```

ρy

밁 Qy В Qy

γQ . B Ωy 밁

밁 Ş 밁 δÃ 밁

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                      밁
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                            ΩV
                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                      Qy
                                                       В
                                                                                 γ
                                                                                                             Вþ
                                                                                                                                       Qy
                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140 ggaaattccactggaaccttaatggtcttctttggcaatgtggattcatctgggataaaa
                                                                                                               487
                                                                                                                                                                      427
                                                                                                                                                                                                   560
                                                                                                                                                                                                                               367
                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                                                                                                                                                 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7 GGCAACACCACCAGTACACAGATGATGTTCTTTGCAAACGTGGACGCAACCACGGTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cacaatatttttaaccctccaattattgctcgatacatccgtttgcacccaactcattat
                                                                                                                                                                                                                                                                                                                                                           accaatatgtttgccacctggtctccttcaaaagctcgacttcacctccaagggaggagt 439
                                                                                                                               aatggcaaagtaaaggtttttcagggaaatcaagactccttcacaccctgtggtgaactct
                                                                                                                                                                                                                                                acaatgaaagtcacaggagtaactactcagggagtaaaatctctgcttaccagcatgtat
                                                                                                                                                                                                                                                                                                     aatgcctggagacctcaggtgaataatccaaaagagtggctgcaagtggacttccagaag
                                                                                                                                                                                                                                                                                                                                                                                                     agcattcgcagcactcttcgcatggagttgatgggctgtgatttaaatagttgcagcatg
ATTGCCCTGNNGNTAGAGTNNNNNNNCTGNNA
                        attgccctgaggatggaggttctgggctgcga
                                                       CTGGAGCCNNCGCTCTTTGCCCGCTATGTGAGGATACATCCCCGCCACTGGCACACCAC
                                                                               ctagacccaccgttactgactcgctaccttcgaattcacccccagagttgggtgcaccag 739
                                                                                                             AACGGCAAGGAGAAGATTTTCAGGGCAAACAGAGATTACACCAGCACAGTGCTGAACAGC
                                                                                                                                                                      GTGAAGGAGTTTGCTGTCTCCAGCAGCCAGGATGGTGTCCACTGGAGCCGGGTCCTGCAT
                                                                                                                                                                                                 gtgaaggagttcctcatctccagcagtcaagatggccatcagtggactctctttttcag
                                                                                                                                                                                                                               AATGCATGGAGACCAGAGACCAACAGCCCCAGTGAGTGGTTGCAGGTGGACTTTGAAGCA
                                                                                                                                                                                                                                                                                                                                             TCCAATATCTTCTCCAGCTGGTCACCCTCCCAGGCCCGGCCTGAACCTGCAGGGAAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCATCCGCACCACACTGCGCATGGAGCTCATTGGCTGCGATCTGAACAGCTGCTCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   al Similarity
407; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University of Delaware
Townsend Hall, Newark, DE
Tel: 302-831-1335
Fax: 302-831-2822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cogburn, L.A., Morgan, R.W. Chicken ESTs from fat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Larry A. Cogburn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 639)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cogburn@udel.edu,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="fat"
/lab_host="E.coli EMDH10B"
/note="Vector: psporT1"
190 c 150 g 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="pgfln.pk008.h22"
/clone_lib="normalized ch
/sex="Male and Female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Gallus
/db_xref="taxon:90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 280.4; DB 11; Pred. No. 1e-71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 www.chickest.udel.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19717,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gallus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               chicken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      225; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                             679
                                                                                                                                                                                                                                                            559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             199
                                                                                                                                                                                                                                                                                                                                                                                                                                    379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                          606
                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
```

```
Ş
                                                                      밁
                                                                                                δÃ
                                                                                                                                      B
                                                                                                                                                                    Ş
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                          В
   밁
                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
BE847128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
   242
                                                                                                                                                                                                                                        560
                   740 attgccctgaggatggaggttctgggctgcgaggcacaggacctctactga 790
                                                                                  680 ctagacccaccgttactgactcgctaccttcgaattcaccccccagagtttgggtgcaccag 739
                                                                                                                                                                                                                                                                                         500 acaatgaaagtcacaggagtaactactcagggagtaaaatctctgcttaccagcatgtat 559
                                                                                                                                        122
                                                                                                                                                        620 aatggcaaagtaaaggtttttcagggaaatcaagactccttcacacctgtggtgaactct 679
                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                          N
                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                         gtgaaggagttcctcatctccagcagtcaagatggccatcagtggactctcttttttcag 619
ATTGCTCTGAGGCTTGAGATTCTAGGATGTGAGGCCCAGCAGCAATACTGA 292
                                                                CTAGACCCACCATTACTCACTCGCTATCTTCGAATTCACCCCCAGATCTGGGAGCACCAA
                                                                                                                                   AATGGCAAGGTAAAGGTTTTTCAGGGGAATCAGGACTCATCCACACCTATGATGAATTCT 181
                                                                                                                                                                                                     GTGAAAGAGTTCCTTATTTCCAGCAGTCAAGATGGCCATCACTGGACTCAAATTTTATAC 121
                                                                                                                                                                                                                                                                      ACAATGAAAGTCACTGGAATAATAACCCAGGGAGTGAAATCTCTCTTTACCAGCATGTTT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BE847128 401 bp mRNA EST 26-SEV-2000 uw22b11.yl Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:3417405 5' similar to gb:L05573 Mus domesticus coagulation factor VIII mRNA complete (MOUSE); mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.
Email: cgapbs-remail.nih.gov
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria;
1 (bases 1 to 401)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE847128.1 GI:10305395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BE847128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MGI:1093217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                           117 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer: -40RP from Gibco
                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="Spleen"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="IMAGE:3417405"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Soares mouse 3NbMS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .401
                                                                                                                                                                                                                                                                                                                                                        21.7%;
                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                        Score 217.4;
Pred. No. 3.
                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                          3.5e-53;
                                                                                                                                                                                                                                                                                                                                                                        DB 11; Length 401;
                                                                                                                                                                                                                                                                                                                                         46;
                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
AW489638/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
```

```
The sequence contained an oligo-dT track that was present in the oligonuclectide that was used to prime the synthesis of first strand cDNA and therefore this may represent a bonafide poly A tail. The sequence tag present in the cDNA between the NotI site and the oligo-dT track served to identify it as a clone from the normalized brain stems library CDNA Library Preparation: M.B. Soares Lab Clone distribution: Researchers may obtain BMAP cDNA clones from RESEARCH GENETICS. It should be noted that Bento Soares is generating a small number of additional specialized non-redundant arrays of BMAP cDNAs whose availability will be considered under appropriate and limited collaborative arrangements
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The following repetitive elements were found in this cDNA sequence: 18-106, >ORRIB#LTR/MalR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AW489638 444 bp mRNA
UI-M-BH3-asm-g-04-0-UI.s1 NIH_BMAP_M_S4 Mus musculus cDNA clone
UI-M-BH3-asm-g-04-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       National Institute of Mental Health 6001 Executive Blvd. Room 7N-7190,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Chin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLYA=Yes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: 301 443 1706
Fax: 301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Normalization and subtraction: two approaches to facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bonaldo, M.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW489638.1 GI:7059908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: mEST@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases
                                                                         /note="wector: pp773D-Pac (pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; The NIH_BMAP_M_54 library is a subtracted library of a series, ultimately derived from a mixture of individually tagged normalized libraries from ten regions of the mouse brain (cerebellum, brain stems, olfactory bulbs, hypothalamus, cortex, amygdala, basal ganglia, pineal gland, striatum, hipoccampus) after a series of subtractions to reduce the representation of cDNAs from which ESTs had already been generated. The following serially subtracted libraries were generated in this process: NIH_BMAP_M_54.
NIH_BMAP_M_53.3, NIH_BMAP_M_53.1, The subtracted library (NIH_BMAP_M_53.1 clones from which 3' ESTs had been derived was used as a driver in a hybridization with a pool of the NIH_BMAP_M_53.3, nIH_BMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Res. 6 (9),
                                                         converted to double-stranded circles and electroporated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone_lib="NIH_BMAP_M_S4"
/dev_stage="27-32 days"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:10090"
/clone="UI-M-BH3-asm-g-04-0-UI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'lab_host="DH10B (Life Technologies)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 to 444)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lennon, G. and Soares, M.B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    791-806 (1996)
(LifeTechnologies) to generate the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSC 9643, Bethesda,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
```

```
RESULT 1
AA184901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  734 caccagattgccctgaggatggaggttctggggctgcgaggcacagggacctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  444 CAAAAGACAATGAAAGTCACTGGAATAATAACCCAGGGAGTGAAATCTCTCTTTACCAGC 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hes 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atgtatgtgaaggagttcctcatctccagcagtcaagatggccatcagtggactctcttt 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACCAAATTGCTCTGAGGCTTGAGATTCTAGGATGTGAGGCCCAGCAGCAATACTGA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aactctctagacccaccgttactgactcgctaccttcgaattcaccccccagagttgggtg 733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTATACAATGGC-----AAGGTTTTTCAGGGGAATCAGGACTCATCCACACCTATGATG 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttcagaatggcaaagtaaaggtttttcagggaaatcaagactccttcacacctgtggtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGTTTGTGAAAGAGTTCCTTATTTCCAGCAGTCAAGATGGCCCATCACTGGACTCAAATT 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTCTCTAGACCCACCATTACTCACTCGCTATCTTCGAATTCACCCCCCAGATCTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mt93e12.rl Soares mouse 3NbMS Mus musculus cDNA clone IMAGE:637486 5' similar to gb:L05573 Mus domesticus coagulation factor VIII mRNJ complete (MOUSE); mRNA sequence.
                                                                                                                                                                                                                                                                                          Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
                                                                                                                                                                                                                                                                                                                                                                                                                  Marra, M., Hillier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M., Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moore, B., Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                    Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        , complete AA184901
                                                                                                   Seq primer: -28M13 rev2 from Amersham High quality sequence stop: 250.
                                                                                                                                               MGI:389478
                                                                                                                                                                  IMAGE Consortium (info@image.llnl.gov)
                                                                                                                                                                                                                                                                                                                                                         Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                             The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA184901.1 GI:1768759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA184901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             louse mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                             314 286 1800
314 286 1810
                                                                              quality sequence stop: 250.
Location/Qualifiers
                                                                                                                                                                                                                                                                    Forest Park Parkway, Box 8501, St. Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAG_TISSUE=brain-stems
TAG_SEQ=TCATG"
a 80 c 100 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       described (Bonaldo, L
6:791-806, 1996)
TAG_LIB=NIH_BMAP_M_S4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NIH_BMAP_M_S4 library. This procedure has been previously described (Bonaldo, Lennon and Soares, Genome Research
/organism="Mus musculus
/strain="C57BL/6J"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 to 265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 201.4; DB 1
Pred. No. 1.9e-48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46;
                                                                                                                                                                  tor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                  further
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 444;
                                                                                                                                                                                                                                                                         MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-FEB-1997
                                                                                                                                                                  information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus.
```

B Qy 밁 δÃ В δõ В Ş 멍 Ω

```
RESULT 11
BE852200/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                          FEATURES
                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best
                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                         AUTHORS
                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 615 ttcagaatggcaaagtaaaggt 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             375 actttaccaatatgtttgccacctggtctccttcaaaagctcgacttcacctccaaggga 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240 TATACAATGGCAAGGTAAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120 AAAAGACAATGAAAGTCACTGGAATAATAACCCAGGGAGTGAAATCTCTCTTTACCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ACTTCACCAACATGTTTGCTACTTGGTCTCCTTCACAAGCTCGACTTCACCTCCAGGGAA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgtatgtgaaggagttcctcatctccagcagtcaagatggccatcagtggactctctttt 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agaagacaatgaaagtcacaggagtaaactactcagggagtaaaatctctgcttaccagca 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTTTGTGAAAGAGTTCCTTATTTCCAGCAGTCAAGATGGCCATCACTGGACTCAAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGACTAATGCCTGGCGACCTCAGGTGAATGATCCAAAACAATGGTTGCAAGT-GACTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ggagtaatgcctggagacctcaggtgaataatccaaaagagtggctgccaagtggacttcc 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      226;
                                                                                                                                                                        Unpublished (1997)
Other_ESTs: uw22b11.y1
                                                                                                                                                                                                                                                                                                                                                                                                                                                   BEB52200 384 bp mRNA EST 26-SEP-2000 uw22b11.x1 Soares mouse 3NDMS Mus musculus cDNA clone IMAGE:3417405 3' similar to SW:FA8_MOUSE Q06194 COAGULATION FACTOR VIII PRECURSOR
                                                                                                               Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL;
                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                          EST
                                                                             MGI:1093217
                                                                                                                                                                                                                  Tumor Gene Index
                                                                                                                                                                                                                                NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP).
                                                                                                                                                                                                                                                                         Mammalia; Eutheria;
1 (bases 1 to 384)
                                                                                                                                                                                                                                                                                                                                                      house mouse
                                                                                                                                                                                                                                                                                                                                                                                             BE852200.1 GI:10310464
                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82
                                                                                               Consortium (info@image.llnl.gov) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3']; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not and Eco RI sites of the modified pf?73 vector. RNA provided by Dr. Bertrand Jordan. Library went through three rounds of normalization, and was constructed by Bento Soares and M. Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Mus musculus"
/strain="C57BL/6J"
                                        1. .384
                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="Spleen"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="Soares mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="IMAGE:637486"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19.4%;
86.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 194; DB 10;
Pred. No. 2.5e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                   further information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               265;
                                                                                                                     contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
```

20

```
RESULT 1
AW446518
                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                       JOURNAL MEDLINE
                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                532 agtaamatctctgcttaccagcatgtatgtgaaggagttcctcatctccagcagtcamaga 591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ggcacaggacctctactga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aattcacccccagagttgggtgcaccagattgccctgaggatggagggttctgggctgcga 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  agactccttcacacctgtggtgaactctctagacccaccgttactgactcgctaccttcg 711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tggccatcagtggactctcttttttcagaatggcaaagtaaaggtttttcagggaaatca 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCCAGCAGCAATACTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATTCACCCCCAGATCTGGGAGCACCAAATTGCTCTGAGGCTTGAGATTCTAGGATGTGA 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCCATCACTGGACTCAAATTTTATACAATGGCAAGGTAAAGGTTTTTCAGGGGAATCA 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTGAAATCTCTCTTTACCAGCATGTTTGTGAAAGAGTTCCTTATTTCCAGCAGTCAAGA 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218;
                                                                                                                                                                                                                                                                                                                                                                                                               AW446518
AW446518.1
EST.
Contact: Smith TPL USDA, ARS, US Meat Animal Research Center PO Box 166, Clay Center, NE 68933-0166, USTel: 402 762 4366 Fax: 402 762 4390
                                                                                                                                                                                                       Smith, T.P.L., Grosse, W.M., Freking, B.A., Roberts, A.J., Stone, R.T., Casas, E., Wray, J.E., White, J., Cho, J., Fahrenkrug, S.C., Bennett, G.L., Heaton, M.P., Laegreid, W.W., Rohrer, G.A., Chitko-McKown, C.G., Pertea, G., Holt, I., Karamycheva, S., Liang, F., Quackenbush, J. and
                                                                                                                      Sequence evaluation of four pooled-tissue normalized libraries and construction of a gene index for cattle Genome Res. 11 (4), 626-630 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AW446518 247 bp
86227 MARC 1BOV Bos
                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                              COW
                                                                                                                                                                                        Keele,J.W.
                                                                                                                                                                                                                                                                                                             Bovidae; Bovinae;
                                                                                                                                                                                                                                                                                                                                                                          Bos taurus
                                                                                                                                                                                                                                                                                        (bases 1 to 247)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3']; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not and Eco RI sites of the modified pf773 vector. RNA provided by Dr. Bertrand Jordan. Library went through three rounds of normalization, and was constructed by Bento Soares and M.Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="Spleen"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10090"
/clone="IMAGE:3417405"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Soares mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.3%;
84.2%;
                                                                                                                                                                                                                                                                                                             Bos.
                                                                                                                    ruction of a gene 626-630 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 193.4; DB 1
Pred. No. 4.2e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ر
د
ر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41;
                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence
                                                                                                                                                for cattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    384;
                                                                                                                                                                 bovine cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

Š

В οy В QΨ 밁 Q

ORIGIN

В Q В

SOURCE

rocus

COMMENT

TITLE

```
MEDLINE
COMMENT
                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                    DЪ
                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                            AW456831/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 213
                                                                                                              JOURNAL
                                                                                                                                          TITLE
                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          520
                                                                                                                                                                                                                                                                                                                                                                                    242 TTTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity es 213; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
                                                                                                                                                                                                                                                                                                                                                                                                                                                         togotacottogaattoacococagagttgggtgcaccagattgccctgaggatggaggt 759
                                                                                                                                                                                                                                                                                                                                                                                                              tctggg
                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCTTCCTTCGGATTCACCCGCGGAGCTGGGCGCACCATATCGCCCTGAGGCTGGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGTAGTCAAGATGGCCATAACTGGACTCCATTTCTTCAGAATGGCAAAGTGAAGGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97044477
Contact:
                          Tel:
                                                                                                                                                                               Mus musculus
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                AW456831 431 bp mRNA EST 24-FEB-2000 UI-M-BH3-aqw-h-12-0-UI.S1 NIH_BMAP_M_S4 Mus musculus cDNA clor UI-M-BH3-aqw-h-12-0-UI 3', mRNA sequence.
                                         6001 Executive Blvd. Room 20892-9643, USA
                                                                                                                                                      1 (bases 1 to 431)
Bonaldo, M.F., Lenno
                                                                                                                                                                                                                                           EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BACKWARD: GTTTTCCCAGTCACGACG
Plate: 48 row: F column: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Single pass sequencing Bases call v0.980904.e. Vector identified by and minmatch 12 options.

PCR PRimers
                                                                      National Institute of Mental Health
                                                                                                              Genome Res. 6 (9),
                                                                                                                             discovery
                                                                                                                                                                                                                                                       AW456831.1 GI:7027048
                                                                                                                                                                                                                                                                       AW456831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Plate: 48 row: F column: 20 Seq primer: ATTTAGGTGACACTATAG
                                                                                                                                          Normalization and
                                                                                                                                                                                                                              house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FORWARD: AGGAAACAGCTATGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: smith@email.marc.usda.gov
             301 443 1706
301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                    247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
mEST@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Bos taurus"
/db_xref="taxon:9913"
/clone_lib="MARC 1BOV"
/tissue_type="pooled"
/lab_host="DH10B"
                                                                                   Chin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note-"vector: pCMV SPORT6; Site_1: xba1; Site_2: xho1; Library made from pooled tissue from lymph node, ovary, fat, hypothalamus, and pituitary."

68 c 61 g 62 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                      Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19.3%;
                                                                                   H
                                                                                                                                          subtraction:
                                                                                                              791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 193.2; DB 10, Pred. No. 4.2e-46; ""matches 33;
                                                       7N-7190, MSC 9643,
                                                                                                                                                                                  Craniata; Vertebrata;
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             called and trimmed with phred
                                                                                                                                          two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cross_match with the
                                                                                                                                        approaches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                   Muridae;
                                                       Bethesda,
                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                247;
                                                                                                                                                                                                  Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                   Murinae;
                                                       ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -minscore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                  clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        579
```

0;

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                       431 AAGTCACTGGAATAATAACCCAGGGAGTGAAATCTCTCTTTACCAGCATGTTTGTGAAAG
                                         Local Similarity
nes 233; Conserv
                                                                                                                                                                                                                                               agttcctcatctccagcagtcaagatggccatcagtggactctcttttttcagaatggca 626
----AAGGTTTTTCAGGGGAATCAGGACTCATCCACACCTATGATGAATTCTCTAGACC
                                                                                                                                                                                           AGTTCCTTATTTCCAGCAGTCAAGATGGCCATCACTGGACTCAAATTTTATACAATGGC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The sequence contained an oligo-dT track that was present in the oligonucleotide that was used to prime the synthesis of first strand cDNA and therefore this may represent a bonafide poly A tail. The sequence tag present in the cDNA between the NotI site and the oligo-dT track served to identify it as a clone from the normalized brain stems library cDNA Library Preparation: M.B. Soares Lab Clone distribution: Researchers may obtain BMAP CDNA clones from RESEARCH GENETICS. It should be noted that Bento Soares is generating a small number of additional specialized non-redundant arrays of BMAP cDNAs whose availability will be considered under appropriate and limited collaborative arrangements The following repetitive elements were found in this cDNA sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLYA=Yes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /Clone=1bb="NIH_BMAP_M_S4"
/Clone_1ib="NIH_BMAP_M_S4"
/Clone_1ib="NIH_BMAP_M_S4"
/dev_stage="27-32 days"
/lab_bst="PHID8 (Life Technologies)"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified
/note="Vector: pT7T3D-Pac (P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (NIH_BMAP_M_S4) was constructed as follows: PCRamplified CDNA inserts from NIH_BMAP_M_S3.3, NIH_BMAP_M_S3.2, and NIH_BMAP_M_S3.1 clones from which 3' ESTs had been derived was used as a driver in a hybridization with a pool of the NIH_BMAP_M_S3.3, NIH_BMAP_M_S3.2, and NIH_BMAP_M_S3.1 libraries in the form of single-stranded circles. The remaining single-stranded circles (subtracted library) was purified by hydroxyapatite column chromatography, converted to double-stranded circles and electroporated into DH10B bacteria (LifeTechnologies) to generate the NIH_BMAP_M_S4 library. This procedure has been previously described (Bonaldo, Lennon and Soares, Genome Research 6:791-806, 1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   >ORR1B#LTR/MalR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAG_SEQ=TCATG"
1 78 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAG_LIB=NIH_BMAP_M_S4
TAG_TISSUE=brain-stems
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19.0%; score 190; DB 10; Length 431; 82.0%; Pred. No. 4.5e-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                            372
                                                                                                                                                                                           311
```

Qy

Ъ δÃ

밁 Ş В

```
ρ
                                                                                                 밁
                                                                                                                                                Qy
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
AL552613
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                            149 actggaaccttaatggtcttctttggcaatgtggattcatctgggataaaacacaatatt 208
242 CCTACCCTTCGATTGGAACTGCAAGGTTGTGAGGTAAATGGATGTTCCACACCCCTGGGT 301
                            269 agcactcttcgcatggagttgatgggctgtgatttaaatagttgcagcatgccattggga 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     197 TGAGGCTTGAGATTCTAGGATGTGAGGCCCAGCAGCAATACTGA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             747 tgaggatggaggttctgggctgcgaggcacaggacctctactga 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            687 caccyttactyactcyctaccttcyaattcacccccayayttygytycaccayattyccc 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    257 CACCATTACTCACTCGCTATCTTCGAATTCACCCCCAGATCTGGGAGCACCAAATTGCTC 198
                                                                                                                                                                                                                                                                                                 62 GAGTTCTATGTAGCTTACAGTTCCAACCAGATCAACTGGCAGATCTTCAAAGGGAACAGC 121
                                                                                                                                                                                                                                                                                                                                             89 cagittatcatcatgtatagtcttgatgggaagaagtggcagacttatcgaggaaattcc 148
                                                                                                                                                                                                                                                                                                                                                                                                                                            29 attattcacggcatcaagacccagggtgcccgtcagaagttctccagcctctacatctct 88
                                                                                                                                                                                                                                                                                                                                                                                                  2 ATAATCACAGGGATCCAGACCCAAGGTGCCAAACACTACCTGAAGTCCTGCTATACCACA 61
                                                                                              TTTGACCCACCTATTGTGGCTAGATATATTAGGATCTCTCCAACTCGAGCCTATAACAGA
                                                                                                                                             tttaaccctccaattattgctcgatacatccgtttgcacccaactcattatagcattcgc 268
                                                                                                                                                                                                  ACAAGGAATGTGATGTATTTAATGGCAATTCAGATGCCTCTACAATAAAAGAGAATCAG 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AL552613 927 bp mRNA EST 16-FEB-200 AL552613 LTI_NFL006_PL2 Homo sapiens cDNA clone CSODI067YG24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: segref@genoscope.cns.fr, Web : www.genoscope.cns.fr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Li,W.B., Gruber,C., Jessee,J. and Polayes,D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 927)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL552613.1 GI:12891683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   prime, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         313 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Vector: PCMVSPORT 6; Site_1: NotI; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pcMvSPORT 6 vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      http://fulllength.invitrogen.com"
192 c 182 g 239 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rockville, Maryland 20850, USA Fax : (1) 301 610 8371 Email : fliang@lifetech.com URL :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="placenta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="LTI_NFL006_PL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="CS0DI067YG24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15.9%;
52.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches 347; Indels 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 158.8; DB 10; Length 927; Pred. No. 9.4e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2;
```

밁 Š

QΥ

ρy

멍

ω --

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
AL577036/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      602 TCCATGGTGGACAAGATTTTTGAAGGAAATACTAATACCAAAGGACATGTGAAGAACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gagtteeteateteeageagteaagatggeeateagtggaetetetttttteagaatgge 625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               attgccctgaggatggaggttctgggctgcga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----aaagtaaaggtttttcagggaaatcaagactccttcacacctgtggtgaactct 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGGGAGATTACTGGGAACCCTTCCGTGCCCGTCTGAATGCCCAGGGACGTGTGAATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGCACTTCGCCTGGAACTCTTTGGCTGTGA 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCAACCCCCCAATCATTTCCAGGTTTATCCGTGTCATTCCTAAAACATGGAATCAAAGT 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ctagacccaccgttactgactcgctaccttcgaattcacccccagagttgggtgcaccag 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCAAGCCAAGGCAAACAACAATAAGCAGTGGCTAGAAATTGATCTACTCAAGATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tggagacctcaggtgaataatccaaaagagtggctgcaagtggacttccagaagacaatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    t---ttgccacctggtctccttcaaaagctcgacttcacctccaagggaggagtaatgcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCTATACCATCCACTACAGTGAGCAGGGAGTGGAATGGAAACCATACAGGCTGAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL577036 LTI_NFL006_PL2 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mammalia; Eutheria; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL577036.1 GI:12939773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  prime, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91006 EVRY cedex - France segref@genoscope.cns.fr, V
                                                                                                         /tissue_type="placenta"
/note="Vector: pCMVSPORT 6; Site_1: NotI; 1st strand cDNA
/note="Vector: pCMVSPORT 6; Site_1: NotI; 1st strand cDNA
was primed with a NotI-oligo(dT) primer. Five prime end
enriched, double-stranded cDNA was digested with NotI and
cloned into the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the NotI and Eco RV sites of the pCMVSPORT 6
/topic to the PCMVSPORT 6
/topic to
                                    http://fulllength.invitrogen.com*
160 c 158 g 238 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="CS0DI082Y022"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="LTI_NFL006_PL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens cDNA clone CS0DI082Y022 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  www.genoscope.cns.
                                        9 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
```

```
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                         Ş
                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                    80
                                                                                  밁
                                                                                                                                                                      Dþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 366;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                683 AGGGAACAGCACAAGGAATGTGATGTATTTAATGGCAATTCAGATGCCTCTACAATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  743 CTAWACCACAGAGTTCTATGTAGCTTACAGTCCCAACCAGATCAACTGGCAGATCTTCAA 684
                                                                                                                                                                                                                                                           263 TGTATGTAAAGAGCTATACCATCCACTACAGTGAGCAGGGGAGTGGAAATGGAAACCATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    318 tgccattgggaatggagagtaaagcaatatcagatgcacagattactgcttcatcctact
                                                                                                                                                                                                                615 ttcagaatggc-----aaagtaaaggtttttcagggaaatcaagactccttcacacctg
                                                                                                                                                                                                                                                                                                                                                  323 TCAAGATCARGAAGATAACGGCAATTATAACACRGGGCTGCAAGTCTCTGTCCTCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           443 RGAAATCTTGGKGGGAGATTACTGGGAACCCTTCCGTGCCCGTCTGAATGCCCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    378 ttaccaatatgt---ttgccacctggtctccttcaaaagctcgacttcacctccaaggga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    563 CTATAACAGACCTACCCTTCGATGTGGAACTGCAAGGTTGTGAGGTAAATGGATGTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79 ctacatctctcagtttatcatcatgtatagtcttgatgggaagaagtggcagacttatcg 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tagcattcgcagcactcttcg-catggagttgatgggctgtgatttaaatagttgcagca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aggaaattccactggaaccttaatggtcttctttggcaatgtggattcatctgggataaa 198
                                                                                                                                                                                                                                                                                                                                                                             agaagacaatgaaagtcacagggagtaactcatcagggagtaaaatctctgcttaccagca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACCCCTGGGTATGGAAAATGGAAAGATAGAAAACAAGCAAATCACAGCTTCTTCGTTTA 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGAGAATCAGTTTGACCCACCTATTGTGGCTAGATATATTAGGATCTCTCCAACTCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acacaatatttttaaccctccaattattgctcgatacatccgtttgcacccaactcatta 258
                                                                                                                         tggtgaactctctagacccaccgttactgactcgctaccttcgaattcacccccagagtt
                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGTGAATGCCTGGCAAGCCAAGGCAAACAACAATARGCAGTGGCTRGAAATTGATCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ggagtaatgcctggagacctcaggtgaataatccaaaagagtggctgcaagtggacttcc
GGAATCAAAGTATTGCACTTCGCCTGGAACTCHTTGGCTGTGA 41
                                                                                      TGAAGAACTTTTTCAACCCCCCAATCATTTCCAGGTTTATCCGTGTCATTCCTAAAACAT
                                                                                                                                                                           GGCTGAAATCCTCCATGGTGGACARGATTTTTGAAGGAAATACTAATACCAAAGGACATG
                                                                                                                                                                                                                                                                                                    tgtatgtgaaggagttcctcatctccagcagtcaagatggccatcagtggactctcttt
                                  gggtgcaccagattgccctgaggatggaggttctgggctgcga 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 136.6; I
Pred. No. 3.2e
6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 745;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                             144
                                                                                                                                                                                                                                                                                                             614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  384
                                                                                           84
```

Search completed: January 17, Job time: 8662 sec 2002, 14:59:01

•				•	
•					
	,				
	•				

```
Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                          Database
                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                         Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
                                                                                                                                              Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
PIR_68:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                          US-09-740-211-15
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 January 17, 2002, 12:35:55;
                                                                                                          Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                           219241 seqs, 76174552 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 4.5
Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                                     SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Search time 12.8 Seconds (without alignments) 83.316 Million cell updates/sec
                                                                                                                                                                                                                                           219241
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

27 28 29	265	24	23	22	20	19	18	17	16	15	14	13	12	11	10	9	8	7	σ	u	4	ω	ผ	1	Result No.	
37 37	37	37	38	ω c	ມ ພ ສ ສ	38	38	38	38	38	38	38	38	38	39	39	39	40	41	42	47	47	56	65	Score	
49.3	49.3	9	0	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	0			52.0	53.3	٠.	56.0	62.7	62.7	74.7	86.7	ery	æ
403 481 636	374	356	1333	1307	1144	604	436	347	332	304	303	269	199	199	3335	3085	697	423	2415	1077	2133	869	2319	2351	gth	
2000	200	N	2	N	s N	N	N	N	N	N	N	N	N	_	Ŋ	ν	2	2	Ľ	Ν	N	Ν	Ν	: ب	DB	
B71378 T48404 T38010	T05923	S01992	A37488	T25563	T15510	T37994	F71358	S30921	G83066	T06505	T06981	T31318	S67618	S50398	H81702	T00327	JN0602	T40224	A33733	S70120	T42763	A25945	A47004	EZHU	IĐ	
probable recr prot 3-deoxy-D-manno-oc hypothetical prote	low i				nypothetical prote	۳	hypothetical prote	ferredoxinnitrit	conserved hypothet	glutenin low molec	low-molecular-weig	hypothetical prote		ribosomal protein	adherence factor T	polyprotein - infe	rfb protein - Esch	protein kinase – f	spectrin alpha cha	ATP-dependent RNA	coagulation factor			ion	Description	•

A,Molecule type: mRNA
A,Residues: 1-74, V',76-1259,'E',1261-2351 <RE2>
A;Residues: 1-74, V',76-1259,'E',1261-2351 <RE2>
A;Cross-references: GB:K01740; NID:g182802; PIDN:AAA52484.1; PID:g182803
A;Cross-references: GB:K01740; NID:g182802; PIDN:AAA52484.1; PID:g182803
A;Truett, M.A.; Blacher, R.; Burke, R.L.; Caput, D.; Chu, C.; Dina, D.; Hartog, K.; K.
B.; Randolph, A.; Urdea, M.S.; Valenzuela, P.; Dahl, H.H.; Favalaro, J.; Hansen, J.;
DNA 4, 33-349, 1985
A;Title: Characterization of the polypeptide composition of human factor VIII:C and tA;Reference number: A23584; MUID:86081164
A;Accession: A23584

A;Accession: 158059
A;Status: nucleic acid sequence not shown; translated from GB/EMBL/DDBJ

A;Molecule type: protein A;Residues: 20-36;392-399,'X',401-402;1668-1678;1709-1722,'D',1723-1725;1741-1755 <EA R;Pittman, D.D.; Wang, J.H.; Kaufman, R.J.

A;Reference number: A26174; MUID:86159740 A;Accession: A26174

A;Molecule type: mRNA
A;Residues: 1-2351 <TMV>
A;Residues: 1-2351 <TMV>
A;Cross-references: GB:M14113; NID:g182817; PIDN:AAA52485.1; PID:g182818
A;Eaton, D.; Rodriguez, H.; Vehar, G.A.
Biochemistry 25, 505-512, 1986
A;Title: Proteolytic processing of human factor VIII. Correlation of spec

Correlation of specific cleavag

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30
36	36	36	36	36	36	36	36	36	36	36	36	36	37	37	37
48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	49.3	49.3	49.3
743	734	707	633	607	561	433	394	366	351	311	244	186	3255	1038	891
Ν	N	N	N	N	N	N	ν	N	N	N	N	N	N	Ν	N
T13673	T13674	T26218	B83478	F82502	S64068	T01574	S45355	F72703	A34201	S57863	A72551	E72660	G81702	T15098	G84693
hypothetical prote	_	hypothetical prote	probable two-compo	GGDEF family prote		indeterminate spik	bone morphogenetic	probable heat shoc	bone morphogenetic	pyrroline-5-carbox	hypothetical prote		adherence factor T	hypothetical prote	probable proline-r

ALIGNMENTS

A; Title: Molecular cloning of a cDNA encoding human antihaemophilic factor. A; Reference number: I58059; MUID:85061550	Nature 312, 342-347, 1984	R;Toole, J.J.; Knopf, J.L.; Wozney, J.M.; Sultzman, L.A.; Buecker, J.L.; Fitchman, D.D.s. n.N. Hewick R.M.	A;Cross-references: EMBL:X01165; EMBL:X01166; EMBL:X01179	A; Residues: 1-2351 <woo></woo>	A;Accession: AUU525 A·Moleculo type mRNA	A; Reference number: A00525; MUID:85061548	A; Title: Expression of active human factor VIII from recombinant DNA clones.	Nature 312, 330-337, 1984	R; Wood, W.I.; Capon, D.J.; Simonsen, C.C.; Eaton, D.L.; Gitschier, J.; Keyt, B.; Seeb	2381; PIDN:AAA52420.1; PID:g182383	A; Residues: 1-1921, 'S', 1923-2351 < RES>	A; Molecule type: DNA	A;Status: preliminary; translated from GB/EMBL/DDBJ	A;Accession: I54318	A; Reference number: I54318; MUID: 93265012	A; Title: Sequence of the exon-containing regions of the human factor VIII gene.	Hum. Mol. Genet. 1, 199-200, 1992	R; Gitschier, J.; Wood, W.I.	C; Accession: 154318; A00525; 158059; A23584; A26174; A42348; A43986; S63527; S66445;	C; Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 08-Dec-2000	C; Species: Homo sapiens (man)	N; Alternate names: antihemophilic factor A; coagulation factor VIIIc; procoagulant co	coagulation factor VIII precursor [validated] - human	EZHU	RESULT 1

```
C;Keywords: acute phase; blood coagulation; duplication; glycoprotein; F;1-19/Domain: signal sequence #status predicted <SIG> F;20-2351/Product: coagulation factor VIII #status experimental <MAT>
                                                                                                                                                                                                                                             F;1668-2351/Product: coagulation factor VIIIa light c
F;1709-2038/Domain: A3 <DA3>
F;1716-2038/Domain: ferroxidase repeat homology <F03>
F;2039-2191/Domain: C1 <DC1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Map position: Xq28-Xq28
A; Introns: 48/2; 89/1; 130
C; Function:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein Sci. 4, 740-746, 1995
A,Title: Locations of disulfide bonds and free cysteines in the heavy and light (A,Teferrence number: A52616; MUID:95338127
A; Contents: annotation; disulfide bonds
A; Note: 329-Cys, 711-Cys, and 2019-Cys were shown to have free sulfhydryls
R; Kjalke, M.; Heding, A.; Talbo, G.; Persson, E.; Thomsen, J.; Ezban, M.
Eur. J. Biochem. 234, 773-779, 1995
A; Title: Amino acid residues 721-729 are required for full factor VIII activity.
A; Reference number: S63527; MUID:96163459
A; Accession: S63527
                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;402-730/Domain: ferroxidase repeat homology <FO2>F;760-1667/Domain: B <DB0>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;20-356/Domain: Al <DAl>
F;23-348/Domain: ferroxidase repeat homology <F01>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Pathway: blood coagulation C; Superfamily: coagulation f;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Molecule type: protein
A;Residues: 733-752;753-759 <KJA>
R;Lind, P.; Larsson, K.; Spira, J.; Sydow-Baeckman, M.; Almstedt, A.; Gray, E.; Sandberg
Eur. J. Biochem. 232, 19-27, 1995
A;Title: Novel forms of B-domain-deleted recombinant factor VIII molecules. Construction
                                                                                                                                                                           F;2039-2188/Domain: discoidin I amino-terminal homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;392-759/Domain: A2 <DA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Description: acts as a cofactor, with calcium and phospholipid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: protein
A; Molecule type: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GDB:119124; OMIM:306700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: protein A; Residues: 1668-1685 <LIN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number: S66445; MUID: 96048024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R; McMullen, B.A.; Fujikawa, K.; Davie, E.W.; Hedner, U.; Ezban, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Reference number: A56196; MUID:85061547
A;Contents: annotation; introns
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Reference number: A56109; MUID:91093266
A;Contents: annotation; sulfation
R;Gitschier, J; Wood, W I; Goralka, T.M.; Wion, K.L.; Chen,
Nature 312, 326-330, 1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J. Biol. Chem. 266, 740-746, 199
A; Title: Sulfation of Tyr(1680)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J. Biol. Chem. 264, 14005-14010, 1989
A;Title: Intersubunit fluorescence energy
A;Reference number: A43986; MUID:89340500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: protein
A;Molecule type: protein
A;Residues: 20-36;356-371;392-408;582-594;1668-1669,'X',1671;1672-1692;1693-1708;1709-17
A;Experimental source: recombinant material from Chinese hamster ovary cells
A;Experimental source: recombinant material from Chinese hamster ovary cells
A;Note: Sequence extracted from NCBI backbone and corrected to correspond with the publ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Title: Characterization of the human factor VIII gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochemistry 31, 3315-3325, 1992 A; Title: Identification and function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: A42348; MUID: 92207952
;2192-2351/Domain: C2 <DC2>;2192-2345/Domain: C2 <DC2>;2192-2345/Domain: discoidin I amino-terminal homology <DN2>;60,258,601,776,803,847,919,962,982,1020,1024,1074,1085,1204,1274,1278,1301,1319,1403,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;Gene: GDB:F8C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Comment: Factor VIII is activated by factor Xa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-740/Product: coagulation factor VIIIa heavy chain #status experimental <ACH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Status:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Accession: S66445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Accession: A43986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Accession: A42348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P.J.; Smudzin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130/1; 201/1; 224/1; 263/1; 337/1; 424/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              factor VIII; discoidin I amino-terminal homology; ferroxidas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    functional importance of tyrosine sulfate residues within
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of human blood coagulation factor VIII is essential for
                                                                                                                                                                                                                                                                                                                                                                                             factor VIIIa light chain #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transfer in human factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and thrombin, but
                                                                                                                                                                                      <DN1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E.Y.; Eaton,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481/3; 513/1; 584/3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for the factor IXa pro
                                                                                                                                                                                                                                                                                                                                                                                                  experimental <ACL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prolonged
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hemophilia A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D.H.; Vehar,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exposure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρl
                                                                                                                                                                                                            A;Status: nucleic acid sequence not shown; not compared with conceptual translation A;Molecule type: DNA A;Residues: 1-869 <TOO> C;Superfamily: coagulation factor VIII; discoidin I amino-terminal homology; ferroxid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                Best Local Similarity
```

```
R;Toole, J.J.; Pittman, D.D.; Orr, E.C.; Murtha, P.; Wasley, L.C.; Kaufman, R.J. Proc. Natl. Acad. Sci. U.S.A. 83, 5939-5942, 1986
A;Title: A large region ([approx]95 kDa) of human factor VIII is dispensable for A;Reference number: A25945; MUID:86287369
A;Accession: A25945
                                                                                                                                                        C;Species: Sus scrofa domestica (domestic pig)
C;Date: 16-Aug-1988 #sequence_revision 16-Aug-1988 #text_change 21-Jul-2000
C;Accession: A25945
C;Accession: A25945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: mRNA
A;Residues: 1-2319 <ELD>
A;Residues: 1-2319 <ELD>
C;Superfamily: coagulation factor VII; discoidin I amino-terminal homology;
F;1-19/Domain: signal sequence #status predicted <SIG>
F;1-19/Domain: ferroxidase repeat homology <F01>
F;402-730/Domain: ferroxidase repeat homology <F02>
F;402-730/Domain: ferroxidase repeat homology <F02>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RiElder, B.; Lakich, D.; Gitschiet, C. Genomics 16, 374-379, 1993

A;Title: Sequence of the murine factor VIII cDNA. AiTitle: Sequence aiTOA4: MUID:93300511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F;402-730/Domain: ferroxidase repeat homology <F02>
F;1686-2006/Domain: ferroxidase repeat homology <F03>
F;2007-2156/Domain: discoidin I amino-terminal homology
F;2160-2313/Domain: discoidin I amino-terminal homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;172-198,267-348,547-573,649-730,1851-1877,1918-1922,2040-2188/Disulfide bonds: #sta F;355-356/Cleavage site: Arg-Met (coagulation factor Xa, protein C) #status predicted F;365,737,738,742,1683,1699/Binding site: sulfate (Tyr) (covalent) #status experiment F;391-392/Cleavage site: Arg-Ser (coagulation factor Xa, thrombin) #status experiment F;414,426/Binding site: Arg-Ser (coagulation factor Xa, thrombin) #status experiment F;759-760/Cleavage site: Arg-Ser (coagulation factor Xa, thrombin) #status experiment F;167-1668/Cleavage site: Arg-Glu (unidentified proteinase) #status experimental F;1708-1709/Cleavage site: Arg-Ser (coagulation factor Xa, thrombin) #status experime F;1740-1741/Cleavage site: Arg-Ala (coagulation factor Xa) #status experimental F;2193-2345/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                         coagulation factor VIII - pig (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: A47004; MUID:93300511 A; Accession: A47004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              coagulation factor VIII precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 09-Sep-1994 #sequence_revision 09-Sep-1994 #text_change 18-Jun-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
nes 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                        SQIPPVLKRHQR 1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SQNPPVLKRHQR 1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74.78;
91.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 56;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
0.0076;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2;
                                                               factor VIII is dispensable for in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ferroxid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

62.7%;

Score

ö

DB 3.6;

```
A; Residues: 1-2133 <LOL>
A; Cross-references: EMBL:U49517; NID:g1511633; PID:g1511634; PIDN:AAB06705.1
A; Cross-references: EMBL:U49517; NID:g1511633; PID:g1511634; PIDN:AAB06705.1
C; Superfamily: coagulation factor VIII; discoidin I amino-terminal homology; ferroxidase C; Keywords: acute phase; blood coagulation; duplication; glycoprotein; hemophilia A; pla E; 1-19/Domain: signal sequence #status predicted <SIG> E; 1-19/Domain: signal sequence #status predicted <MAT> E; 20-2133/Product: coagulation factor VIII #status predicted <MAT> E; 20-2139/Domain: ferroxidase repeat homology <FOXI> E; 402-730/Domain: ferroxidase repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                               C; Keywords: ATP; nucleotide binding; F; 312-319/Region: nucleotide-binding F; 419-424/Region: nucleotide-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C; Accession: T42763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coagulation factor VIII precursor - pig
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change 09-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Description: The sequence A; Reference number: S70114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    submitted to the EMBL Data Library, May 1996 A; Description: The sequence of S. cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Saccharomyces cerevisiae
C;Date: 24-Aug-1996 #sequence_revis:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F;1498-1820/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Reference number: Z22269
A;Accession: T42763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              submitted to the EMBL Data Library, August 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R; Lollar,
밁
                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Note:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Map position: 4R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-1077 < FUL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R; Fulton,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N; Alternate names: hypothetical protein D9819.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATP-dependent RNA helicase homolog YDR291w - yeast (Saccharomyces cerevisiae)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: S70120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                         423-426/Region: DEXH motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1441 PPVLRRHQR 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   737 PPVLRRHQR 745
500
                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 PPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 PPVLKRHQR 14
                                                                    5 NPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                              YDR291w
       NPPILPQHER 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                    Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL:U51031; NID:g1332635; PIDN:AAB64466.1; PID:g1230655; MIPS:YDR2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #sequence_revision 06-Sep-1996 #text_change 02-Feb-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ferroxidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62.7%;
88.9%;
                                                                                                                                                                        56.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat homology <FOX3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 47; I
Pred. No. 9.
                                                                                                                                                                        Score 42;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                             P-loop
motif A
motif B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                 (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cosmid 9819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2133;
                                                                                                                                        1;
                                                                                                                                                                                                         Length 1077;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                            0
                                                                                                               В
                                                                                                                                                                               Ş
```

RESULT

```
A;Cross-references: GBM26400; NID:g158488; PIDN:AAA28907.1; PID:g158489
R;Lee, J.K.; Coyne, R.S.; Dubreuil, R.R.; Goldstein, L.S.; Branton, D.
J. Cell Biol. 123, 1797-1809, 1993
A;Title: Cell shape and interaction defects in alpha-spectrin mutants of Drosophila m A;Reference number: A49468; MUID:94103334
A;Accession: A49468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;1498-1604/Domain: spectrin/dystrophin repeat homology F;1605-1710/Domain: spectrin/dystrophin repeat homology F;1711-1816/Domain: spectrin/dystrophin repeat homology F;1711-1816/Domain: spectrin/dystrophin repeat homology F;1817-1922/Domain: spectrin/dystrophin repeat homology F;1937-0000 Monaria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: DNA
A;Residues: 1-150 <LEE>
A;Residues: 1-150 <LEE>
A;Cross-references: GB:S67765; NID:g544666; PIDN:AAB29441.1; PID:g544667
A;Cross-references: GB:S67765; NID:g544666; PIDN:AAB29441.1; PID:g544667
A;Note: sequence extracted from NCBI backbone (NCBIN:141786, NCBIN:141790, A;Accession: B49468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Dubreuil, R.R.; Byers, T.J.; Sillman, A.L.; Bar-Zvi, D.; Goldstein, L.S.B.; Branton J. Cell Biol. 109, 2197-2205, 1989
A;Title: The complete sequence of Drosophila alpha-spectrin: conservation of structur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Drosophila melanogaster
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 21-Jul-2000
C;Accession: A33733; A49468; B49468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: DNA
A;Residues: 2192-2415 (LE2>
A;Cross-references: GB:S67765; NID:g544666; PIDN:AAB29442.1; PID:g544668
A;Cross-reference extracted from NCBI backbone (NCBID:141794)
A;Note: sequence extracted from NCBI backbone (NCBID:141794)
C;Genetics:
A;Gene: F1yBase:&agr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: FlyBase:FBgn0003470
C;Superfamily: spectrin alpha chain; calmodulin repeat homology; SH3 homology; spectr
C;Keywords: actin binding; cytoskeleton; EF hand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Reference number: A33733; MUID:90037215
A;Accession: A33733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spectrin alpha chain - fruit fly (Drosophila melanogaster)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;11072-1179/Domain: spectrin/dystrophin repeat homology F;1180-1285/Domain: spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;786-891/Domain: spectrin/dystrophin repeat homology <SP8>F;892-976/Domain: spectrin/dystrophin repeat homology #status atypical <SP9>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;363-468/Domain: spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;46-150/Domain: spectrin/dystrophin repeat F;151-256/Domain: spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Status:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Status: preliminary
protein kinase - fission yeast (Schizosaccharomyces pombe)
C; Species: Schizosaccharomyces pombe
                                                                                                                                                                                                                                                                                                                                                                                                                          F;2265-2297/Domain:
F;2308-2340/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;1923-2029/Domain:
F;2038-2143/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;680-785/Domain: spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             F;575-679/Domain: spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F;469-574/Domain: spectrin/dystrophin repeat homology
                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;2152-2252/Domain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F;1286-1391/Domain: spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F;977-1024/Domain: SH3 homology <SH3>
                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                     1995 SHAQSPAILKRH 2006
                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                          1 SFSQNPPVLKRH 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          preliminary; not compared with conceptual translation
                                                                                                                                                                                                                                                                                  Similarity 7; Conserv
                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                spectrin/dystrophin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                             calmodulin repeat homology
calmodulin repeat homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             spectrin/dystrophin repeat
                                                                                                                                                                                                                                                                                                                54.7%;
58.3%;
                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                Score 41;
Pred. No.
                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                  1.2e+02;
2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             homology <SP1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     homology
                                                                                                                                                                                                                                                                                                                                                                                                                                   <EF2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homology
                                                                                                                                                                                                                                                                                                                                             Length 2415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <SP2>
<SP3>
<SP4>
<SP5>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <SP6>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <SP8>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <SP10>
<SP11>
<SP12>
<SP13>
<SP14>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <SP15>
<SP16>
<SP17>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <SP20>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <SP19>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <SP18>
                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBIP:1417
                                                                                                                                                                                                                                                                                           0
```

```
C;Date: 03-Dec-1999 #sequence_r
C;Accession: T40224
R;Wood, v.; Rajandream, M.A.; B
submitted to the EMBL Data Libr
A;Reference number: Z21914
A,Accession: T40224
A;Status: preliminary; translat
A;Molecule type: genomic RNA
A;Restidues: 1-3085 <15A>
A;Crestidues: 1-3085 <15A>
C;Keywords: polyprotein
                                                                                                                                                              R;ISawa, H.; Asano, S.; Sahara, K.; Iizuka, T.; Bando, H. Arch. Virol. 143, 127-143, 1998
A;Title: Analysis of genetic information of an insect pic
                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                               A;Status: translated from GB/EMBL/DDBJ
                                                                                                       A;Reference number: Z14139; MUID:98166871
A;Accession: T00327
                                                                                                                                                                                                                                                C:Species: infectious flacherie virus
C:Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: rfb
C;Keywords: membrane protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Title: Inactivation of the Escherichia coli B41 (O101:K99/F41) rfb gene encoding A;Reference number: JN0602; MUID:93138438
A;Accession: JN0602
                                                                                                                                                      ke) viruses.
                                                                                                                                                                                                                                   C; Accession:
                                                                                                                                                                                                                                                                                              polyprotein - infectious flacherie virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: EMBL:X59852; NID:g42718; PIDN:CAA42515.1; PID:g42719 C;Comment: This protein is located in the cytoplasmic membrane and has a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Date: 03-May-1994 #sequence_revision 03-May-1994 #text_change 08-Oct-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Gene: SPDB:SPBC32C12.03c
A;Map position: 2
C;Superfamily: unassigned:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-697 < CHE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gene 123, 9-15, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Accession: JN0602; S33065
R; Cheah, K.C.; Manning, P.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: EMBL:AL022172; PIDN:CAA18163.1; A;Experimental source: strain 972h-; cosmid c32C12 C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C; Species:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N; Alternate names:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rfb protein – Escherichia coli (strain B41)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-423 < WOO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: preliminary; translated from GB/EMBL/DDB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 17-Mar-2000
                                                                                                                                                                                                                                                                                                                                                                                                        684 FGQVPRNLKKHQR 696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 FSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6 PPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PPVYSRHQR 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
8; Conser
                                                                                                                                                                                                                                     T00327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unassigned Ser/Thr or Tyr-specific protein kinases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53.3%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52.0%;
61.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Library, March 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barrell,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 39; DB Pred. No. 71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B.G.; Badcock, K.; Churcher, C.M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
                                                                                                                                                                 insect picorna-like virus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 697;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSPDB:GN00067; SPDB:SPBC32C12.03c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           role in O-anti
                                                                                                                                                                 infectious fla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 homol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       an
```

```
A; Introns: 2/1
C; Superfamily: C; Keywords: cyto
 В
                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                ribosomal protein L13.e.B, cytosolic - yeast (Saccharomyces cerevisiae)
N;Alternate names: protein YM9375.11c; protein YMR142c
C;Species: Saccharomyces cerevisiae
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 22-Oct-1999
                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-199 <BAD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Read, T.u.,
C.; Dodson,
                                                                                                                                                                                                                    A; Map position: 13R
                                                                                                                                                                                                                                     A; Gene: MIPS: YMR142c
                                                                                                                                                                                                                                                          C; Genetics:
                                                                                                                                                                                                                                                                       A;Cross-references: EMBL:Z47071; NID:g606429; PIDN:CAA87356.1; PID:g606440; GSPDB:GN0
                                                                                                                                                                                                                                                                                                                                A; Accession: S50398
                                                                                                                                                                                                                                                                                                                                               A; Reference number: S50388
                                                                                                                                                                                                                                                                                                                                                                    submitted to the EMBL Data
                                                                                                                                                                                                                                                                                                                                                                                     R; Badcock,
                                                                                                                                                                                                                                                                                                                                                                                                      C; Accession: S50398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Molecule type: DNA
A;Residues: 1-3335 <TET>
A;Cross-references: GB:AE002311; GB:AE002160; NID:g7190477; PIDN:AAF39292.1; PID:g719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   adherence factor TC0438 [imported] - Chlamydia muridarum (strain Nigg) C;Species: Chlamydia muridarum, Chlamydia trachomatis MoPn C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 11-May-2000 C;Accession: H81702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Gene: TC0438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Read, T.D.; Brunham, R.C.; Shen, C.; Gill, S.R.; Heidelberg, J.F.; White, O.; Hicke, C.; Dodson, R.; Gwinn, M.; Nelson, W.; DeBoy, R.; Kolonay, J.; McClarty, G.; Salzbe Nucleic Acids Res. 28, 1397-1406, 2000
A;Title: Genome sequences of Chlamydia trachomatis MoPn and Chlamydia pneumoniae AR39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Experimental source: strain Nigg (MoPn)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Reference number: A81500; MUID:20150255
A;Accession: H81702
                                                                                       Query Match
Best Local
                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2174 SQNPPLLK 2181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2070 FNQNSPIWKQH
                                                                      Local Similarity
mes 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity tes 7; Conserv
 N
                                  1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 SQNPPVLK 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 FSQNPPVLKRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10
AISKNLPILKNHFR
                                                                                                                                                               cytosol; protein
                                                                                                                                                                                  rat ribosomal
                                                                                                                                                                                                                                                                                                                                                                                     Churcher, C
                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
15
                                                                                         50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52.0%;
87.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52.0%;
                                                                                                                                                                                                                                                                                                                                                                  Library, December 1994
                                                                                                                                                             protein L13
biosynthesis;
                                                                      ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 39;
Pred. No.
                                                                                         Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 39; DB 2;
Pred. No. 3.4e+02;
                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                 ribosome
                                                                                   DB
29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .7e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                        Length 199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 3085;
                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

RESULT

```
low-molecular-weight glutenin storage protein - wheat C;Species: Triticum aestivum (common wheat) C;Date: 30-Apr-1999 #sequence_revision 30-Apr-1999 #text_change 20-Aug-1999 C;Accession: T06981
              A;Cross-references: EMBL:U86028; NID:g1857655; PIDN:AAB48477.1; PID:g1857656
                                                                                                            R;Anderson, O.D.; Cassidy, B.; Dvorak, J. submitted to the EMBL Data Library, January 1997 A;Reference number: Z15843 A;Accession: T06981
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Yatches 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hypothetical protein - Cenarchaeum symbiosum
C;Species: Cenarchaeum symbiosum
C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change 11-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ribosomal protein L13.e.A, cytosolic - yeast (Saccharomyces cerevisiae)
N;Alternate names: protein D2445; protein YDL082w
C;Species: Saccharomyces cerevisiae
C;Date: 12-Jul-1996 #sequence_revision
C;Accession: S67618
A;Experimental source: cv. Cheyenne
                                          A; Molecule type: mRNA
A; Residues: 1-303 <AN
                                                                                     A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:AF083072; NID:g3599393; PID:g3599404; PIDN:AAC62709.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: Z20994; MUID:98422450
A;Accession: T31318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Superfamily: rat ribosomal protein L13 C;Keywords: cytosol; protein biosynthesis; ribosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Wambutt, R.; Wedler, H.; Wedler, E.; Scharfe, M. submitted to the Protein Sequence Database, July 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Title: Genomic analysis reveals chromosomal variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Schleper, C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Note: YDL082w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Introns: 2/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Map position: 4L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-199 <WAM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:Z74130; NID:g1431103; PIDN:CAA98648.1; PID:g1431104; MIPS:YDL06
A;Experimental source: strain S288C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: S67618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: S67608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;Molecule type: DNA
;Residues: 1-269 <SCH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SChleper, C.; DeLong, E.F.; Preston, C.M.; Feldman, R.A.; Wu, K.Y.; Swanson, Bacteriol. 180, 5003-5009, 1998
                                                                                                                                                                                                                                                                                                                                                                                  50 QNPPVIQRGGR 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 50.0 nes 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                               4 QNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 AISKNLPILKNHFR 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 SFSQNPPVLKRHQR 14
                                          1-303 <AND>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T31318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 38; DB Pred. No. 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 269;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in natural populations of the un
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R.V.
```

Search completed: Job time: 71 sec

January 17,

2002, 12:37:06

```
glutenin low molecular weight chain precursor (B-I) - wheat C;Species: Triticum aestivum (common wheat) C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 12-Nov-1999 C;Accession: T06505 R;Okita, T.W.; Cheesbrough, V.; Reeves, C.D. J. Biol. Chem. 260, 8203-8213, 1985 A;Title: Evolution and heterogeneity of the alpha/beta-type and gamma-type gliadin | A;Reference number: A92541; MUID:85234522 A;Accession: T06505 A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                A; Molecule type: mRNA
A; Residues: 1-304 <OKI>
A; Cross-references: EMBL:M11077; NID:g170729; PIDN:AAA34285.1;
C; Superfamily: gliadin
C; Keywords: seed; storage protein
E; 1-23/Domain: signal sequence #status predicted <SIG>
F; 24-304/Product: glutenin low molecular weight chain (B-I) #st
 Вр
                                δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Description: seed storage protein C;Superfamily: gliadin C;Keywords: seed; storage protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Map position: 1
C; Function:
                                                                    Matches
                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                  Local Similarity nes 7; Conserv
 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43 SFSQQPPFSQQQQQ
                                1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 SFSQNPPVLKRHQR 14
SFSQQPPFSQQQQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 7; Conserv
                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56
                                                                                   50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50.7%;
                                                                  <u>ω</u>
                                                                                   Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in the endosperm
                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.
                                                                               DB
45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
45;
                                                                                                     Length 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 303;
                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                       #status
                                                                                                                                                                                                                        PID:g170730
                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                       predicted <MAT>
                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

Z

```
Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                           A_Geneseq_1101:*
1: /SIDS8/gcgdata,
2: /SIDS8/gcgdata,
3: /SIDS8/gcgdata,
4: /SIDS8/gcgdata,
5: /SIDS8/gcgdata,
6: /SIDS8/gcgdata,
7: /SIDS8/gcgdata,
8: /SIDS8/gcgdata,
9: /SIDS8/gcgdata,
10: /SIDS8/gcgdata,
11: /SIDS8/gcgdata,
11: /SIDS8/gcgdata,
11: /SIDS8/gcgdata,
12: /SIDS8/gcgdata,
13: /SIDS8/gcgdata,
14: /SIDS8/gcgdata,
15: /SIDS8/gcgdata,
16: /SIDS8/gcgdata,
17: /SIDS8/gcgdata,
18: /SIDS8/gcgdata,
19: /SIDS8/gcgdata,
19: /SIDS8/gcgdata,
10: /SIDS8/gcgdata,
10: /SIDS8/gcgdata,
11: /SIDS8/gcgdata,
12: /SIDS8/gcgdata,
13: /SIDS8/gcgdata,
14: /SIDS8/gcgdata,
15: /SIDS8/gcgdata,
16: /SIDS8/gcgdata,
17: /SIDS8/gcgdata,
18: /SIDS8/gcgdata,
18: /SIDS8/gcgdata,
19: /SIDS8/gcgdata,
19: /SIDS8/gcgdata,
10: /SIDS8/gcgdata,
10: /SIDS8/gcgdata,
11: /SIDS8/gcgdata,
12: /SIDS8/gcgdata,
13: /SIDS8/gcgdata,
14: /SIDS8/gcgdata,
15: /SIDS8/gcgdata,
16: /SIDS8/gcgdata,
17: /SIDS8/gcgdata,
18: /SIDS8/gcgdata
                                18:
19:
20:
21:
22:
SIDS8/gcgdata/geneseq/yeneseqp/AA190.DAT:*

(SIDS8/gcgdata/geneseq/geneseqp/AA198.DAT:*

(SIDS8/gcgdata/geneseq/geneseqp/AA198.DAT:*

(SIDS8/gcgdata/geneseq/geneseqp/AA199.DAT:*

(SIDS8/gcgdata/geneseq/geneseqp/AA199.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                522463 seqs, 74073290 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-740-211-15
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            January 17, 2002, 12:35:55; Search time 23.64 Seconds (without alignments) 43.867 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /SIDS8/gcgdata/geneseq/geneseqp/AA1980.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1981.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1981.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1983.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1983.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1985.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1986.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1987.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1987.DAT:*
/SIDS8/gcgdata/geneseq/geneseqp/AA1987.DAT:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

110 9 8 7 5 4 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Result No.
75 75 75 75 75 75 75	Score
100.0 100.0 100.0 100.0 100.0 100.0 86.7 86.7	% Query Match
14 14 1438 1440 1457 1457 1457 211 211	% Query Match Length DB
18 22 21 19 19 20 20 15 15 21	DB
AAW04651 AAE04332 AAB01262 AAR12971 AAW46246 AAW21675 AAY21675 AAY56776 AAY56775 AAR56775 AAR56775 AAR57091 AAB07203	SUMMARIES
Peptide linker for Human factor VIII B-domain deleted f Factor VIII: SQ. Human factor VIII Human factor VIII Beta-domain delete Human anti-haemoph Human anti-haemoph Truncated derivati Human Factor VIIIC	Description

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	. 15	14	13	12
65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
86.7	.5				ņ	86.7	.5	.5			•				٠,	86.7		86.7			6		9	σ.	<u>ه</u>		σ.	5	6.	6.	86.7	σ.	
2345	2345	2345	2344	2344	2344	2344	2344	2344	2344	2343	2343	2342	2342	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2332	2098	1661	1516	1284	1283
18	18	18	18	18	18	18	18	18	18	18	18	18	18	22	22	21	20	19	19	18	18	18	18	18	14	œ	00	8	17	18	9	6	21
AAW11403	AAW11415	AAW11466	AAW11331	AAW11370	AAW11367	AAW11361	AAW11384	AAW11410	AAW11432	AAW11335	AAW11393	AAW11349	AAW11422	AAB50465	AAB71902	AAY57847	AAY31594	AAW44132	AAW53483	AAW33226	AAW33225	AAW33224	AAW33223	AAW33222	AAR43257	AAP71729	AAP71728	AAP71727	AAR86863	AAW18670	AAP80265	AAP50108	AAB07205
Factor	Factor	Factor	Factor	Factor		Factor	Active Factor VIII	or VIII	minal tr	Factor	n factor VIII	apiens modi	Human factor VIII.	Procoagulant-activ	Procoagulant-activ	Procoagulant-activ	Procoagulant-activ	Procoaqulant-activ	n Factor	VIII:c	VIII:c	II:c va	VIII	III	Modified factor VI	-VIIIC d	Human Factor VIIIC						

ALIGNMENTS

Peptide linker for truncated factor VIII 90 and 80 kD fragments.

06-AUG-1997 (first entry)

AAW04651;

AAW04651 standard; peptide; 14 AA

RESULT AAW04651

```
Chan S;
             WPI; 1997-013695/02.
                                         (FARB ) BAYER CORP. (CHAN/) CHAN S. (MILE ) MILES INC.
                                                                         17-APR-1996;
04-MAY-1995;
                                                                                                                                                           linker; cell culture medium; liposome; lipid; phosphatidylcholine; phosphatidylserine; increase; production; recombinant factor VIII; truncated; haemophilia; treatment; plasma protein.
                                                                                                 25-APR-1996;
                                                                                                                 04-DEC-1996
                                                                                                                              EP745672-A2
                                                                                                                                               Synthetic.
                                                                         96US-0634001
95US-0434900
                                                                                                 96EP-0106482.
```

Culture medium contg. liposome like substance comprising at least

0,

```
RESULT
AAE04332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 system. The culture medium is useful to increase production of recombinant factor VIII 4-fold and truncated factor VIII 3-fold. Pactor VIII is a plasma protein required for clotting of the blood, useful in treatment of haemophilia. Liposome like substances contg. lipids such as phosphatidylcholine (PC), phosphatidylethanolamine (PE) phosphatidylserine (PS) alone have no effect on recombinant factor VIII expression in BHK-21 and 293S cells. The present sequence is a linker joining truncated recombinant factor VIII 90 and 80 kD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A novel cell culture medium contg. a liposome like substance, comprises at least 2 different lipids in a molar ratio sufficient to assure a 4-fold increase in factor VIII expression in a mammalian cell culture
The present invention relates to a method for treating a subject suffering from a blood clotting disorder. The method comprises administering a recombinant adeno-associated virion (rAAV) comprising a nucleotide sequence encoding the light chain of factor VIII and a second recombinant adeno-associated virion comprising a nucleotide sequence encoding the heavy chain of factor VIII. The rAAV vector is useful in gene therapy for treating haemophilia A in mammals, in particular humans. The rAAV vector provides high level and long term
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human factor VIII B-domain partial sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAE04332 standard; peptide; 14 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 15; Page 7; 7pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            different lipid(s)
Factor VIII in mam
                                                                                                                                                                                                         Treating blood clotting disorder, especially hemophilia in mammals, by administering recombinant adeno-associated vectors which express blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200145510-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fragments.
                                                                                                                                                       Claim 6; Fig 2; 90pp; English.
                                                                                                                                                                                          coagulation factor VIII
                                                                                                                                                                                                                                                                                                                                                              22-DEC-1999;
                                                                                                                                                                                                                                                                                                                           (AVIG-) AVIGEN INC
                                                                                                                                                                                                                                                                                                                                                                                              21-DEC-2000; 2000WO-US34925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Recombinant adeno-associated viral vector; rAAV; factor VIII; FVIII;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 sfsqnppvlkrhqr 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
                                                                                                                                                                                                                                                             2001-417955/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clotting disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
                                                                                                                                                                                                                                                                                               Colosi PC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mammalian
                                                                                                                                                                                                                                                                                                                                                              99US-0470618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            useful for increasing prodn. of recombinant ian cell cultures
                                                                                                                                                                                                                                                                                               Qian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene therapy; haemophilia A; human; B-domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 75; DB 18;
Pred. No. 4.5e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
SSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                            the method are not only useful for producing protein having factor VIII procoagulant activity but also for producing adenovirus and adeno-associated virus strains for gene therapy. The advantage of having cells producing protein with factor VIII procoagulant activity is that factor VIII protein can be produced on an industrial scale in the range of 2-4 pg/cell/day. Human Burkitt's lymphoma (HKB) cells provide a protein-free production system to produce not only B-domain deleted factor VIII but also other therapeutic proteins. The vector used in the method preferably comprises B-domain deleted factor VIII), a transcriptional unit for BDD-FVIII and a selectable marker, dihydrofolate reductase (dhfr). In addition, a transcriptional repeats the protein of the method profolate reductase (dhfr).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        expression of biologically active clotting factor VIII in vivo. The present sequence represents partial human factor VIII B-domain. This sequence is encoded by rAAV vectors of the invention.
                                                                                                                                                                                                                                             producing cells expressing a protein having factor VIII procoagulant activity, comprises contacting the cells with a vector comprising a selectable marker and a sequence coding for the protein having factor VIII procoagulant activity operably linked to a promoter. The cells are then selected and individual clones expressing high levels of the protein are isolated from the selected cells. The cells produced by
                                                                                                                                                                                                                                                                                                                                                                                                                       Producing cells expressing a protein having factor VIII procoagulant activity especially, human factor VIII in an industrial scale, involvexpressing a vector comprising a sequence coding for factor VIII in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Factor VIII; procoagulant; adenovirus; adeno-associated strain;
gene therapy; human Burkitt's lymphoma; HKB; therapy;
therapeutic protein; vector; Epstein-Barr virus; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B-domain deleted factor VIII sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB01262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB01262 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (FARB ) BAYER CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              therapeutic protein; vector; Epstein-Barr
                                                                                                                                                                                                                                                                                                                                                                         Claim 7; Fig 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-DEC-1998;
                  vector to increase integration
                               terminal repeat sequence from Epstein-Barr virus is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 SFSQNPPVLKRHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chan SY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0209916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99WO-US29169.
                                                                                                                                                                                                                                                                                                                                                                           27pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kelsey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein; 1438 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 75; DB 22;
Pred. No. 4.5e-07;
                      efficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                          into
                                                                                                                                                                                                                                                                                                                                                                                                                                                    involves
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                          the
```

SS

Sequence

1438

B

```
RESULT
AAR12971
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                new polypeptide chain is obtd. where there are 14 amino acids linking Arg 740 and Arg 1648. Of these 14 amino acids, the sequence of the five N-terminal ones directly corresponds to the five amino acids following Arg 740 in full-length factor VIII. Also, the sequence of the 12 C-terminal amino acids of the above 14 amino acids fragment directly corresponds to the 12 amino acids preceding Glu 1689 in full-length factor VIII, thus creating a 3 amino acid overlap between the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Recombinant human factor VIII deriv. deoxyrobonucleic acid - encoding protein comprising two chains linked by segment of B domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR12971 standard; protein; 1440 AA.
Sequence
                           fig. description in the specification. Note that Arg 740 is Arg 742 in the indexed sequence, etc. Also, Asn 745 (N-terminal link overlap) is Asp 747 in AAP80265, but indexed as Asn to reproduce the fusion fragment as shown in fig.1, and Asn 745 (C-terminal link overlap).
                                                                              In order to index this example, the factor VIII:QD amino acid sequence was retrieved from W08800831 (AAP80265). The amino acid numbering in the above comments is reproduced from the fig. description in the specification. Note that Arg 740 is Arg 742
                                                                                                                                                                N- and C-terminal regions of the B-domain.
The factor VIII deriv. is useful for treating haemophilia or
haemophilia A. It has the biological characteristics of plasma derived
                                                                                                                                                                                                                                                                                                                                     requirements for correct cleavage. In this example, amino acids to 1636 of the full-length factor VIII polypeptide are deleted.
                                                                                                                                                                                                                                                                                                                                                                             factor VIII deletion derivative that can be produced in vivo and/or in vitro, to a two chain protein consisting of polypeptide chains of 90 kD and 80 kD, the amino acid sequences surremains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Fig 1; 35pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Almstedt AB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (KABI ) KABIVITRUM AB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-DEC-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-DEC-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W09109122-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Factor VIII; B domain; haemophilia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Factor VIII:SQ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-OCT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR12971;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               741 sfsqnppvlkrhqr 754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                   kD and 80 kD, the amino acid sequences surrounding Arg 740 and 1648 have to be conserved in order to preserve the structural
                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein is a fusion between Phe 742 and Ser 1637 of the factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1991-208148/28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   =
=
=
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
 1440 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hellstrom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89SE-0004239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90WO-SE00809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Larsson K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 75;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.8e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sandberg HI,
                                                                                                                                                                                                                                                                        the sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spira
                                                                                                                                                                                                                                                                                                                                       Þ
                                                                                                                                                                                                                                                                                                                                                                                                       of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

```
RESULT
AAW46246
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-JUN-1997;
03-JUL-1996;
13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Replication defective; recombinant retrovirus; RRV; therapeutic protein; haemophilia; thrombosis; hypercoagulable disorder; liver disease; human; hepatitis; thalassemia; phenylketonuria; Lesch-Nyhan syndrome; diabetes; cystic fibrosis; Duchenne's Muscular Dystrophy; hypercholesterolemi; hypopituitarism; adenine deaminase deficiency, HIV infection; anaemia; Guacher's syndrome; high blood pressure; Alzheimer's disease, autoimmune; inflammatory disease; factor VIII.
                                                                                                                         expressing a therapeutic protein. The RRV preparation is resistant to degradation by human complement and is capable of inducing long term systemic expression of the therapeutic protein when administered intravenously to a human. The long term systemic expression results in a measurable level of the therapeutic protein being produced in the blood of the human for a period of at least 30 days after the administration of the RRV vector preparation. RRV's can be used for in vivo delivery of therapeutic protein to treat, e.g. haemophilia A, haemophilia B, there is the content of the conte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human factor VIII beta-domain deleted SQN deletion protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW46246 standard; Protein; 1457 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW46246;
                        thrombosis, hypercoagulable disorders, liver diseases such as hepatitis, disorders such as thalassemia, phenylketonuria, Lesch-Nyhan syndrome, severe combined immunodeficiency (SCID), cystic fibrosis, Duchenne's Muscular Dystrophy, inherited emphysema, familial hypercholesterolemia,
                                                                                                                                                                                                                                                                                                                                        VIII. The encoding DNA is used to construct recombinant retroviral vectors expressing human factor VIII. The invention provides the preparation of replication defective recombinant retrovirus (RRV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9800541-A2
                                                                                                                                                                                                                                                                                                                                                                                                                     This is the beta-domain deleted SQN deletion protein of human factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 28; Pages 213-217; 272pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         administered to provide long term systemic expression of therapeutic protein in blood, useful in, e.g. treating hyper-coagulable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAV19581.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        De
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Allen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-1997;
  diabetes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New replication defective recombinant retro-viruses - which can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    743 sfsqnppvlkrhqr 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 SFSQNPPVLKRHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <sub>5</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-086966/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VEGA
hypopituitarism, adenine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D, Depolonj, Greengard J, Hsu
Lee R, Mittelstaedt DM, Prussak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Barber JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96US-0696381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96US-0645601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97WO-US11784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97US-0869309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Boder M, Chang SMW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 75;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
        deaminase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  thes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chong K;
DC, Ibane
CE, Respe
           deficiency,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Respess JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ibanez CE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW44372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local :
                                                                  This polypeptide comprises the B domain deletion mutant SQN of human Factor VIII. The SQN mutant is created by fusing Ser-743 to Gln-1638 of native Factor VIII (see AAM44373) to form a Ser-Gln-Asn (SQN) link between the A2 and A3 Factor VIII domains. A DNA sequence encoding the SQN deletion mutant is provided in AAV15338. When compared to plasmid derived Factor VIII, the SQN deletion does not influence the in vivo pharmacokinetics, but the reduced size of the molecule appears to decrease proteolytic degradation. The invention relates to preparations of replication defective
               infecting human cells, is resistant to degradation a complement and is capable of inducing long-term (at
                                                                                                                                                                                                                                              New replication defective recombinant retroviruses - which express B domain-deleted human factor VIII or human factor IX for the treatment of haemophilia
                                                                                                                                                                                                                                                                                                                                                                       Allen
De La
                                            recombinant retrovirus (RV) expressing a B domain-deleted human Factor VIII protein, where the recombinant RV is capable of
                                                                                                                                                                                                                      Claim 5; Page 175-180; 236pp; English.
                                                                                                                                                                                                                                                                                                                                                          Jolly
                                                                                                                                                                                                                                                                                                                                                                                                                                              03-JUL-1996;
13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9800542-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human Factor VIII SQN deletion mutant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 antitrypsin deficiency, Guacher's syndrome, anaemia, infections such as HIV infection, high blood pressure, Alzheimer's disease, autoimmune or inflammatory disease or graft versus host disease. RRV's are capable of surviving inactivation in human serum thereby allowing efficient gene transfer over prolonged periods of time.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     retrovirus; vector; human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Factor VIII; blood clotting; haemophilia A; gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                   (CHIR ) CHIRON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW44372 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         760 sfsqnppvlkrhqr 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 SFSQNPPVLKRHQR 14
    ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6
                                                                                                                                                                                                                                                                                                              1998-086967/08.
DB; AAV15338.
                                                                                                                                                                                                                                                                                                                                                         DJ,
                                                                                                                                                                                                                                                                                                                                                                     Vega
                                                                                                                                                                                                                                                                                                                                                                                    JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14;
                                                                                                                                                                                                                                                                                                                                                      Barber JR, Boder M, Chang SM, D, Depolo NJ, Greengard J, Hsı Mittelstaedt DM, Prussak CE, Re
                                                                                                                                                                                                                                                                                                                                                                                    Barber JR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1457 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0869309.
96US-0645601.
96US-0696381.
                                                                                                                                                                                                                                                                                                                                                                                                                   CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97WO-US11785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%;
longer post-injection) systemic expression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 75; DB 17,
Pred. No. 6.9e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A
                                                                                                                                                                                                                                                                                                                                                                   Hsu DC,
                                                                                                                                                                                                                                                                                                                                                      Respess
                                                                                                                                                                                                                                                                                                                                                                                Chong K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1457;
                                                                                                                                                                                                                                                                                                                                                                     Ibanez CE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                              by human
                least 30 days
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

Matches

Query Match Best Local Similarity

100.0%; Score 75; DB 20; ilarity 100.0%; Pred. No. 6.9e-05; Conservative 0; Mismatches 0;

Length 1457;

Indels

0,

Gaps

```
RESULT
AAY21675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SXC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                         The method, DNA sequences and expression vectors can be used to increase the expression of a gene, especially a Factor VIII gene. Genes containing modified 5' and/or 3' untranslated regions have optimized expression levels and tissue-specific expression. The methods are used for identification and correction of consensus splice sites, addition of introns, optimization of 5' and 3' untranslated regions and increase in cytoplasmic RNA accumulation. Hence the DNAs are useful in gene therapy to treat a clinical disorder, to study RNA processing and/or gene regulation. The present sequence represents a beta-domain deleted Factor
Sequence
                                                                                                                                                                              The invention describes novel genes and vectors exhibiting increased expression and novel splicing patterns. It provides a gene encoding a Factor VIII protein, that comprises one or more consensus or near consensus splice sites which have been corrected to increase expressions.
                                                                                                                                                                                                                                                         Disclosure; Page 72-78;
                                                                                                                                                                                                                                                                                                          patterns,
                                                                                                                                                                                                                                                                                                                        Genes and
                                                                                                                                                                                                                                                                                                                                                    N-PSDB; AAX82258, AAX82259, AAX82260
                                                                                                                                                                                                                                                                                                                                                                     WPI; 1999-385602/32.
                                                                                                                                                                                                                                                                                                                                                                                                  Bidlingmaier S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-JAN-1998;
05-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Factor VIII protein; gene modification; gene therapy; clinical disorder; splicing pattern; RNA processing; gene regulation; beta-domain; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY21675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9929848-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Beta-domain deleted Factor VIII protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY21675 standard; Protein; 1457 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Factor VIII when administered to a haemophilia A patient
                                                                                                                                                                                                                                                                                                                                                                                                                               (IMMU-) IMMUNE RESPONSE CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                760 sfsqnppvlkrhqr 773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity es 14; Conserv
                              protein.
                                                                                                                                                                                                                                                                                                         vectors exhibiting incuseful for expression
1457 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1457 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0071596.
97US-0067614.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-US25354.
                                                                                                                                                                                                                                                                                                                                                                                                    Gonzales JEN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                          123pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                       increased expression and ion of, e.g. beta-domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 75;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                  Ill CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 19;
6.9e-05;
                                                                                                                                                                                                                                                                                                                                                                                                Yang CQ;
                                                                                                                                                                                                                                                                                                         and novel splicing
ain deleted factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1457;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                               expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

D VQ

<u>س</u>

SFSQNPPVLKRHQR

14

760 sfsqnppvlkrhqr 773

```
RESULT
AAR56775
ID AAR5
XX
AC AAR5
XX
DT 03-A
XX
DE Huma
XX
KW Anti
KW fusi
                                                                                                                                                                                            망
                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                  RESULT
AAR56776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ID
                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                        A monoclonal antibody (MAb) directed against this peptide may be used in an immunoadsorption process to remove unnatural type human antihaemophilic factor VIII L chain having this peptide fused to its N-terminus (an impurity on preparation of the human antihaemophilic factor VIII protein complex). The MAb bonds to unnatural type human antihaemophilic factor VIII L chain fused with the peptide but does not bond substantially to natural type human antihaemophilic factor VIII chain. This peptide corresponds to amino acids 1614-1649 of human antihaemophilic factor VIII-B domain.
Antihaemophilic factor VIII; B domain; monoclonal antibody; MAb; fusion protein; impurity; immuno-adsorption.
                                     Human anti-haemophilic factor VIII B domain C-terminal fragment
                                                                     03-APR-1995
                                                                                                                      AAR56775 standard; peptide; 86 AA
                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 3; Page 10; 12pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Monoclonal antibody binding to unnatural human anti-haemophilic factor VIII B domain - is used in immuno-adsorption process to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JP06205696-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human anti-haemophilic factor VIII B domain C-terminal fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR56776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR56776 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TEIJ ) TEIJIN LTD.
(KAGA ) ZH KAGAKU & KESSEI RYOHO KENKYUSHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antihaemophilic factor VIII; B domain; monoclonal antibody; MAb; fusion protein; impurity; immuno-adsorption.
                                                                                                                                                                                            24
                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                       3 SQNPPVLKRHQR 14
                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                         sqnppvlkrhqr 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            impurities
                                                                                                                                                                                                                                               12;
                                                                                                                                                                                                                                                                                                                  36 AA;
                                                                                                                                                                                                                                               Conservative
                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93JP-0002537.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93JP-0002537.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          impurity; immuno-adsorption
                                                                                                                                                                                                                                                            86.7%;
100.0%;
                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                             Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                           DB 15;
8.1e-05;
                                                                                                                                                                                                                                                                      Length 36;
                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                            0;
```

```
RESULT
AAP50091
 Д
                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                   Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           used in an immunoadsorption process to remove unnatural type human antihaemophilic factor VIII i chain having this peptide fused to its N-terminus (an impurity on preparation of the human antihaemophilic factor VIII protein complex). The MAb bonds to unnatural type human antihaemophilic factor VIII i chain fused with the peptide but does not bond substantially to natural type human antihaemophilic factor VIII chain. This peptide corresponds to the 86 C-terminal amino acids of human antihaemophilic factor VIII-B domain (amino acids
Favaloro J;
          Kuo G,
                                                                                                                                                                                         Factor-VIIIC;
                                                                                                                                                                                                                Truncated derivative of Factor-VIIIC
                                                                           26-OCT-1984;
                                                                                                  11-JAN-1985;
                                                                                                                        07-AUG-1985
                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                      10-OCT-1991
                                                                                                                                                                                                                                                             AAP50091
                                                                                                                                                                                                                                                                                  AAP50091 standard; Protein; 211 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A monoclonal antibody (MAb) directed against this peptide may be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 3; Page 10; 12pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Monoclonal antibody binding to unnatural human anti-haemophilic factor VIII B domain - is used in immuno-adsorption process to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1994-275529/34
                               (CHIR-) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JP06205696-A.
                                                                  12-JAN-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1563-1648 of the mature protein).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TEIJ ) TEIJIN LTD.
(KAGA ) ZH KAGAKU & KESSEI RYOHO KENKYUSHO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-JUL-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                        10
                                                                                                                                                                                                                                                                                                                                         75 sqnppvlkrhqr 86
                                                                                                                                                                                                                                                                                                                                                               3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    impurities
                                                                                                                                                                                                                                                                                                                                                                                      12;
         Masiarz F,
                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                               86 AA;
                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                           blood-clotting
                                                                 84US-0664919
84US-0570062
                                                                                                  85EP-0100223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93JP-0002537.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93JP-0002537.
         Truett M,
                                                                                                                                                                                                                                                                                                                                                                                                  86.7%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                  Score 65;
Pred. No.
         Valenzuela
                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                DB 15;
0.00021;
          ۵,
         Rasmussen
                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                   Gaps
```

```
DRXXX PTT CCC CCC XXX
   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
The present sequence is the protein sequence for the 77/80kd subunit of human Factor VIIIC. The sequence was identified by creating and sequencing a genomic DNA library of the Factor VIIIC gene. Factor VIIIC is a plasma protein involved in blood coagulation, and is absent or defective in haemophilia A. The Factor VIIIC protein can, therefore, be used to treat haemophilia, as well as in the production of monoclonal antibodies to Factor VIIIC, and in diagnostic assays for the presence of Factor VIIIC subunits in physiological fluids, for example blood or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Prodn. of human Factor VIII C or its precursors or sub-units -
using recombinant DNA techniques with Factor VIII C gene
expressed in host.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The sequence encodes a truncated derivative which is useful as an anticoagulant for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 32; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAN50105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1985-191681/32.
                                                                                                                                         DNA sequence of portion of preventing the symptoms of
                                                                                                                                                                                                                                                                                                                                                                                                               EP1006182-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human Factor VIIIC 77/80kd subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB07203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB07203 standard; Protein; 211 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   haemophilia.
                                                                                                                  Disclosure; Page 16; 39pp; English.
                                                                                                                                                                                                                     Favaloro
                                                                                                                                                                                                                                                          OVON)
                                                                                                                                                                                                                                                                                                           26-OCT-1984;
11-JAN-1985;
                                                                                                                                                                                                                                                                                                                                    12-JAN-1984;
                                                                                                                                                                                                                                                                                                                                                              11-JAN-1985; 2000EP-0200860
                                                                                                                                                                                                                                                                                                                                                                                      07-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Factor VIII C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-OCT-2000
                                                                                                                                                                                                                                                                                               11-JAN-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             115 sqnppvlkrhqr 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 SQNPPVLKRHQR 14
                                                                                                                                                                                           2000-367967/32
                                                                                                                                                                               AAA58440.
                                                                                                                                                                                                                                                                       CHIRON CORP
                                                                                                                                                                                                                                Rasmussen ME,
                                                                                                                                                                                                                                                          NOVO-NORDISK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             211 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                               domain; human; blood clotting; haemophilia.
                                                                                                                                                                                                                                                                                              84US-0570062.
84US-0664919.
85EP-0100223.
91EP-0113267.
                                                                                                                                                                                                                                                          AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86.7%; Score 65;
100.0%; Pred. No.
                                                                                                                                                                                                                                  Masiarz FR,
                                                                                                                                          human Factor VIIIC haemophilia -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                  Valenzuela P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 6; L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of human Factor-VIIIC, treatment of
                                                                                                                                                       for treating and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                  Truett M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        þу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

밁 Qy

952 sqnppvlkrhqr 963

3 SQNPPVLKRHQR 14

Matches Query Match

Local Similarity

Conservative

0;

0,

Gaps

0;

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SXC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                          The present sequence is the protein sequence for human Factor VIIIC, which was obtained by sequencing a genomic DNA library. Factor VIIIC is a plasma protein involved in blood coagulation, and is absent or defective in haemophilia A. The Factor VIIIC protein can, therefore, be used to treat haemophilia, as well as in the production of monoclonal antibodies to Factor VIIIC, and in diagnostic assays for the presence of Factor VIIIC subunits in physiological fluids, for example blood or serum.
                                                                                                                                                                                                                                                                                                                                        12-JAN-1984;
26-OCT-1984;
11-JAN-1985;
11-JAN-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                             DNA sequence of portion of human Factor VIIIC preventing the symptoms of haemophilia - \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human Factor VIIIC protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB07205 standard; Protein; 1283 AA.
                                                      Sequence
                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                Kuo G,
                                                                                                                                                                                                                                                                                                                                                                                                 11-JAN-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                       07-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                              EP1006182-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Factor VIII C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11-OCT-2000 (first entry)
                                                                                                                                                                                                                                              WPI; 2000-367967/32.
                                                                                                                                                                                                                                                                     Favaloro
                                                                                                                                                                                                                                                                                                       (NOVO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115
                                                                                                                                                                                                                                                                                                                  (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
hes 12; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sqnppvlkrhqr 126
                                                                                                                                                                                                                                   AAA58443.
                                                                                                                                                                                                                                                                                 Rasmussen ME,
                                                                                                                                                                                                                                                                                                       NOVO-NORDISK AS
                                                       1283 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211 AA
                                                                                                                                                                         Page 31-35; 39pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 2000EP-0200860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain; human; blood clotting; haemophilia.
                                                                                                                                                                                                                                                                                                                                        84US-0664919.
85EP-0100223.
91EP-0113267.
                                                                                                                                                                                                                                                                                                                                                                           84US-0570062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86.7%;
86.7%; Score 65; DB
100.0%; Pred. No. 0.
Live 0; Mismatches
                                                                                                                                                                                                                                                                                 Masiarz FR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           score 65; DB; Pred. No. 0.0
                                                                                                                                                                                                                                                                                  Valenzuela P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 21; I
. 0.00055;
thes 0;
          DB 21;
0.0038;
                       21;
                                                                                                                                                                                                             for treating and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 211;
                       Length 1283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                    Truett M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
RESULT 13
AAP50108
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                Q
                                                                                                                                                                                    RESULT 14
                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                     Query Match
      31-JUL-1987;
                                                                                                       Modified factor VIII:C sequence with the Q744-D1563 deletion
                          11-FEB-1988
                                            WO8800831-A.
                                                             Homo sapiens.
                                                                                    Modified factor VIII:C; maturation polypeptide; haemophilia;
                                                                                                                                                AAP80265;
                                                                               blood coagulation;
                                                                                                                              10-OCT-1990
                                                                                                                                                                AAP80265 standard; protein; 1516 AA.
                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                The sequence encodes a derivative of human Factor-VIIIC, which is useful as an anticoagulant for the treatment of haemophilia.
                                                                                                                                                                                                                                                                                                                                                                     Prodn. of human Factor VIII C or its precursors or sub-units - by using recombinant DNA techniques with Factor VIII C gene
                                                                                                                                                                                                                                                                                                                                           Disclosure; Appendix B; 58pp; English
                                                                                                                                                                                                                                                                                                                                                                 expressed in host.
                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1985-191681/32.
                                                                                                                                                                                                             952 sqnppvlkrhqr 963
                                                                                                                                                                                                                                                                                                                                                                                                                        Favaloro J;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Kuo G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-OCT-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-JAN-1985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-AUG-1985.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP150735-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Factor-VIIIC; blood-clotting.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Factor-VIIIC derivative.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAP50108 standard; Protein; 1284 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (NORD-) NORDISK GENTOFTE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CHIR-) CHIRON CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12-JAN-1984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-OCT-1991
                                                                                                                                                                                                                                                    Local Similarity
mes 12; Conserv
                                                                                                                                                                                                                                 3 SQNPPVLKRHOR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                Masiarz F, Truett M,
                                                                                                                                                                                                                                                                                                  1284 AA;
                                                                                                                                                                                                                                                    Conservative
                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
      87WO-US01814.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84US-0664919.
84US-0570062.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85EP-0100223
                                                                               QD deletion
                                                                                                                                                                                                                                                            86.7%;
                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                            Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                               Valenzuela P,
                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                            DB 6;
0.0039;
                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                               Rasmussen M;
                                                                                                                                                                                                                                                                   Length 1284;
                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                 0;
```

```
RESULT 1
AAW18670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 12; Conserv
                                                          13-NOV-1995;
                                                                                   13-NOV-1996;
                                                                                                                                     WO9718315-A1
                                                                                                                                                                                                   Кеу
                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                              Factor VIII-db695-HCII; heparin cofactor II; blood coagulation; blood clotting; procoagulant; anticoagulant; antithrombotic; haemophilia; gene therapy.
                                 (IMMO ) IMMUNO
                                                                                                            22-MAY-1997.
                                                                                                                                                                                       Domain
                                                                                                                                                                                                                                                                                                      Factor VIII-dB695-HCII.
                                                                                                                                                                                                                                                                                                                                10-AUG-1997
                                                                                                                                                                                                                                                                                                                                                         AAW18670;
                                                                                                                                                                                                                                                                                                                                                                                 AAW18670 standard; Protein; 1661 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  yields than previous recombinant produced factor VIII:C and are more easily purified. The peptide is used for treating haemophilia A, both acute and prolonged bleeding.
See also AAN80446 and AAN80447.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A major part of the sequence encoding the maturation polypeptide of factor VIII:C is deleted, i.e. Gln 744 - Asp 1563. The QD deletion retains approximately 90 amino acids of the maturation polypeptide (four amino acids at the N-terminal end and 86 amino acids at the C-terminal end). The full lenght Factor VIII:C CDNA has two changes with respect to the published sequence (EPO application 160457):CTG to CTA at Leu 242 and TTC to CTC change at amino acid residue 1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The product is produced in approx. 20 times higher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 3; Page 51-52-53-54; 97pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           encoding maturation polypeptide, useful for high yield transformation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New DNA sequences encoding modified factor VIII:C -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB; AAN80444.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pasek MP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-AUG-1986;
                                                                                                                                                                                                                                                                                                                                                                                                                                            821 sqnppvlkrhqr 832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (BIOJ ) BIOGEN NV (PASE/).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Phe to Leu)
                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1988-049866/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1516 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                              (first entry)
                                  AG
                                                          95US-0558107
                                                                                   96WO-EP04977.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86US-0893375.
                                                                                                                                                           /note= "heparin cofactor II acidic domain"
                                                                                                                                                                           /label= HCII
                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86.7%; Sur
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9;
0.0046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       with deletion of DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
```

Voorberg JJ;

```
Search completed: January 17, 2002, 12:36:28 Job time: 33 sec
                                                                                                    Вb
                                                                                                                                     δÃ
                                                                                                                                                                             Query Match .86.7%; Score 65; DB 18; Best Local Similarity 100.0%; Pred. No. 0.0051; Matches 12; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                Factor VIII-dB695-HCII (AAW18670) is a hybrid protein in which amino acids 712-736 of Factor-dB695 (Factor VIII del868-1562) B-domain are replaced by amino acids 51-80 from the acidic region (and potential thrombin-binding site) of human heparin cofactor II (HCII). It is the expression product of Factor VIII-dB695-HCII DNA (AAT69811) in plasmid pCLB-dB695-HCII. The hybrid protein, which can be expressed using gene therapy techniques, has increased procoagulant activity owing to the HCII acidic region, and can be used to treat blood coagulation disorders such as haemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hybrid Factor VIII with modified activity, comprises region from donor anticoagulant or antithrombotic protein - useful for treatment of coagulation disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 11; Page 52-60; 96pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1997-289291/26.
N-PSDB; AAT69811.
                                                                                                                                                                                                                                                                                   Sequence
                                                                                                  3 SQNPPVLKRHQR 14
||||||||||
966 sqnppvlkrhqr 977
                                                                                                                                                                                                                                                                                   1661 AA;
                                                                                                                                                                                       0;
                                                                                                                                                                                                                         Length 1661;
                                                                                                                                                                                       0;
                                                                                                                                                                                       Gaps
                                                                                                                                                                                       0;
```

٨

```
Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9n:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.
Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq length: 0
seq length: 2000000000
 protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Issued_Patents_AA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match
866.7
866.7
866.7
866.7
866.7
866.7
866.7
744.7
744.7
744.7
744.7
744.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-740-211-15
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212252 seqs, 22503292 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     January 17, 2002, 12:35:55 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                 11661
11661
11661
2332
2332
2332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
23332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DВ
                                                                                                                                                                                                                                                            US-08-634-001C-1
US-09-470-618-15
US-08-82-083-2
US-08-858-107-2
US-09-243-539-2
US-09-243-539-2
US-08-251-937A-4
US-08-251-937A-2
US-08-276-594A-2
US-08-6474-503-2
US-08-677-707A-2
US-08-67-37-601-2
US-09-324-867-3
                                                                                                                                                                        PCT-US94-13200-2
US-08-121-202-2
US-08-366-851A-2
5171844-2
               US-08-683-839B-3
US-09-324-867-4
US-09-3213A-8
US-08-472-133A-6
US-08-670-707A-6
US-09-037-601-6
PCT-US94-13200-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H
                                                                                                                                                                                                                                                PCT-US93-03275-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 search time 12.5 Seconds
(without alignments)
25.204 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212252
                                                                                                                                                Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 4, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 4, Appli
Sequence 3, Appli
Sequence 4, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 6, 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
                 Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
   Sequence
 3, Appli
4, Appli
8, Appli
6, Appli
6, Appli
6, Appli
6, Appli
6, Appli
30, Appli
```

US-08-634-001C-1

Query Match
Best Local Similarity

100.0%;

Score 75; DB 2; Pred. No. 3.9e-07;

Length 14;

PRIOR APPI APPLICAT FILING I APPLICAT FILING I FILING I FILING I FILING I FILING I FILING I FILEDHOM TELECOMMU TELEPHOM TELEFAN INFORMATION SEQUENCE LENGTH: TYPE: TOPOLOGIC DESCRIPTON	US-08-634-00LG SEQUENCE 1, SEQ	B S
CLASSIFICATION: 435 CLASSIFICATION NUMBER: APPLICATION NUMBER: APPLICATION NUMBER: FILING DATE: MAY 4, ATTORNEY/AGENT INFORMAT NAME: Gibiin, James REGISTRATION NUMBER: REFERENCE/DOCKET NUMBER: REF	uence 1, Application US/(ent No. 5952198 ent No. 5952198 right of INFORMATION: APPLICANT: Chan, Sham-Y, APPLICANT: Chan, Sham-Y, TITLE OF INVENTION: In i TITLE OF INVENTION: In i TITLE OF INVENTION: Sub- TITLE OF INVENTION: Sub- NUMBER OF SEQUENCES: 1 CORRESONDENCE ADDRESS: ADDRESSEE: Bayer Corps TREET: 800 Dwight Wa: STREET: P. O. Box 198 CITY: Berkeley STATE: California COUNTY: Usakette COMPUTER READABLE FORM: MEDIUM TYPE: Diskette COMPUTER: IBM OPERATING SYSTEM: DOS SOFTWARE: WordDerfect CURRENT APPLICATION NUMBER: U	
ICATION: ICATION: ICATION DI TION NUMBEI TION NUMBEI AGENT INFO GIBHIN, Jan ATION NUMBEI CE/DOCKET NICATION I) NICATION I) NICATION I) NICATION I NICATI	Application Spinor Spinor	444480 8.0077
SSO 7ME ATTO	OLC-L I, Application US/08634001C I, Application US/08634001C INFORMATION: INFORMATION: OF INVENTION: Production of INVENTION: In the Prese of INVENTION: Substances of INVENTION: Substances of OF SEQUENCES: I SEQU	34 2343 868 868 868 1090 1115 2113 2133 2133 2133 2133 354 133 153 153 352 392 392
34, 72 MS ON:	m-Yuen production in the Pre Substances 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 US-00 4 US-00 1 US-00 1 US-00 1 US-00 2 PCT-1 1 US-0 4 US-0 4 US-0 4 US-0 5 PCT-1 6 US-0 6 US-0 7 US-0 7 US-0 8 US-0 8 US-0 8 US-0 8 US-0 8 US-0 8 US-0
900 98-7226CIP	O C	-08-441-943-30 -09-324-867-2 -08-441-943-34 -07-864-004B-6 -08-251-133A-3 T-US93-03275-6 -09-324-867-5 -09-37-601-37 -08-318-831-6 -09-374-135-2 -09-348-466B-1 -09-664-800-2 -09-665-309-2 ALIGNMENTS
θŢ	combina of Lipo xed Com	943-30 943-34 943-34 904B-6 907A-6 1133A-3 1133A-3 1135A-3 707A-5 707A-7 601-3 7052-2 -135-2 -466B-12 -466B-12 -600-2 -309-2 -309-2 -309-2
	Recombinant Factor the of Liposome-like Mixed Composition	
	n VIII	See
	H	Sequence 30, sequence 2, Sequence 6, Sequence 6, Sequence 5, Sequence 5, Sequence 5, Sequence 5, Sequence 5, Sequence 6, Sequence 6, Sequence 17, Sequence 10, Sequence 12, Sequence 12, Sequence 12, Sequence 2, Sequence 3, Sequence 2, Sequence 2, Sequence 2, Sequence 2, Sequence 3,
		30, Appli 34, Appli 6, Appli 6, Appli 6, Appli 6, Appli 7, Appli 7, Appli 12, Appli 12, Appli 12, Appli 12, Appli 12, Appli 22, Appli 23, Appli 24, Appli 25, Appli 27, Appli 28, Appli 29, Appli 29, Appli 20, Appli 21, Appli 21, Appli 22, Appli 23, Appli 24, Appli 25, Appli 26, Appli 27, Appli 28, Appli 29, Appli 20, Appli 20, Appli 21, Appli 22, Appli 23, Appli 24, Appli 25, Appli 26, Appli 27, Appli 28, Appli 29, Appli 20, Appli 20, Appli 20, Appli 20, Appli 21, Appli 21, Appli 22, Appli 23, Appli 24, Appli 25, Appli

```
US-08-882-083-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER INFORMATION: Description of Artificial Sequence: Synthetic US-09-470-618-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-470-618-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2, Application US/08882083 Patent No. 5869292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER FILING DATE: 1998-10-20
NUMBER OF SEQ ID NOS: 15
SOFTWARE: PATENTIN VET. 2.0
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Couto, Linda B.
APPLICANT: Colosi, Peter C.
TITLE OF INVENTION: Adeno-Associated Vectors for Expression of Factor VIII
TITLE OF INVENTION: by Target Cells
FILE REFERENCE: Avigen-04082
CURRENT APPLICATION NUMBER: US/09/470,618
CURRENT FILING DATE: 1999-12-22
EARLIER APPLICATION NUMBER: 09/364,862
EARLIER APPLICATION NUMBER: 60/125,974
EARLIER APPLICATION NUMBER: 60/125,974
EARLIER APPLICATION UMBER: 60/125,974
EARLIER APPLICATION NUMBER: 60/125,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 15, App.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL
        CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/558,107
FILING DATE: 13-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/882,083
                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       NERAL INFORMATION: APPLICANT: VOORBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 14
                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                          STREET: 3000 K S CITY: Washington STATE: D.C.
                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                     20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09470618
                                                                                                                                                                                                                                                                                                                                                E: Foley & Lardner
3000 K Street, N.W., Suite 500
                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 VOORBERG, Johannes J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                               HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 75; DB 4;
Pred. No. 3.9e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
γ
                                                                                                              ; MOLECULE TYPE: US-08-558-107-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-558-107-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; MOLECULE TYPE: protein US-08-882-083-2
                                 Matches
                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2, Application US/08558107
Patent No. 5910481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                  CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: ISACSON, John P.
REGISTRATION NUMBER: 33,715
REFERENCE/DOCKET NUMBER: 3047
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEFEAX: (202)672-5399
                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO:
                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 1661 amino aci
                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 3000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 1661 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED ACTIVITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               966 SQNPPVLKRHQR 977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELLEFAX: (2017)
TELLEFAX: 904136
                                              Local Similarity
                                                                                                                                              TOPOLOGY:
                                                                                                                                                         TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 13-NO
                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
mes 12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: ISACSON, John P.
REGISTRATION NUMBER: 33,715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                        904136
                                                                                                                                                                          1661 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3000 K Street, N.W., Suite 500
                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VOORBERG, Johannes J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                13-NOV-1995
                                              100.0%;
                                                           86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86.7%; Score 65; DB 2; 100.0%; Pred. No. 0.0037;
                                                                                                                                                                                                                                                                                                                                                                             US/08/558,107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                               0; Mismatches
                                              Score 65; Pred. No.
                                                                                                                                                                                                                                                                                    30472/212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                           DB 2;
                                              0.0037
                                                           Length 1661;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1661;
                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

밁

966 SQNPPVLKRHQR 977

```
US-07-864-004B-4
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; MOLECULE TYPE: protein US-09-243-539-2
                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-243-539-2
                                                                                                                                                                                                                                    Sequence 4, Application US/07864004B Patent No. 5364771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/09243539
Patent No. 6130203
                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGISTRATION NUMBER: 33,715
REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC computable
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                              APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Porcine Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/558,107
COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08 FILING DATE: 13-NOV-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: VOORBERG, JOHANNES J.
TITLE OF INVENTION: HYBRID PROTEINS WITH MODIFIED ACTIVITY
NUMBER OF SEQUENCES: 17
                                                                                                                                  CORRESPONDENCE ADDRESS
                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                      966 SONPPVLKRHOR 977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: SUUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/09/243,539 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                  COUNTRY: U:
ZIP: 30309
                                                                    STATE:
                                                                                   STREET: 1100 | CITY: Atlanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                       3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ISACSON, John P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               904136
                                                                    Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1661 amino acids
                                                                                                      1100 Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3000 K Street, N.W., Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                      SD
                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                    Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                 86.7%; J-
100.0%; Pr
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33,715
                                                                                                                                                                                                                                                                                                                                                                                                                        Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30472/212
                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4;
0.0037;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1661;
                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

0;

```
QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-07-864-004B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-251-937A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 4, Application US/08251937A Patent No. 5583209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 12; Conserv
                           CLASSIFICATION: 435
CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Pratt, John S.
REGISTRATION NUMBER: 29,476
REGISTRATION NUMBER: 29,476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                  COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/251,937A
FILING DATE: 31-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Porcine Factor VIII
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSE: Vilential E Cody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: EM
TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1637 SQNPPVLKRHQR 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HYPOTHETICAL: NO ANTI-SENSE: NO
REFERENCE/DOCKET NUMBER: EM TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                        STREET: 1100 PO
CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 07 AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                     ZIP:
                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Kilpatrick & Cody
STREET: 1100 Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                     30309
                                                                                                                                                                                                                                                                                                                                                        Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2332 amino acids
                                                                                                                                                                                                                                                                                                                                         US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : protein
NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-terminal
                                                                                                                                                            31-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07 APRIL 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Liver cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86.7%; Score 65;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/07/864,004B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMU106
                 EMU106DIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 2332;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

0;

```
Query Match
Best Local Similarity
Watches 12; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-251-937A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-212-133A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/08212133A Patent No. 5663060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECGLE ...
HYPOTHETICAL: NO
""T-SENSE: NO terminal
                                                                                                                                                                               TELEFAX: 404-572-6555
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 404-815-6555 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: EM TELECOMMUNICATION INFORMATION: TELEPHONE: 404-572-6508
                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
NAME: PABST, PATTER L
REGISTRATION NUMBER: 31,284
                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/2:
FILING DATE: March 11, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Hum
NUMBER OF SEQUENCES: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: Homo sapien
TISSUE TYPE: Liver cDNA sequence
                             ANTI-SENSE: NO FRAGMENT TYPE: N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1637 SQNPPVLKRHQR 1648
                 ORIGINAL SOURCE:
                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino acids
                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino aci
                                                            HYPOTHETICAL:
                                                                             MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: 100 Pe
ORGANISM:
                                                                                                STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                               TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Georgia
                                                                                                                                                                                                404-572-6555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100 Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2332 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kilpatrick & Cody
                                                                 YES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86.7%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hybrid Human/Animal Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                   US/08/212,133A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
                                                                                                                                                                                                                                                  EMU/76677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2332;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
```

```
QУ
 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뫄
                                                                                                                                                    US-08-276-594A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-276-594A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TISSUE TYPE: Liver cDNA sequence US-08-212-133A-2
                                                                   Matches
                                                                                Best Local Similarity
                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Applic
Patent No. 5693499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                              TELEX: 904136
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino acids
                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:

APPLICATION NUMBER: JP 243262,

APPLICATION NUMBER: JS 243262,

FILING DATE: 24-SEP-1991

ATTORNEY/AGENT INFORMATION:

NAME: WEGNER, Harold C.

REGISTRATION NUMBER: 25,258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
1637 SQNPPVLKRHQR 1648
                                                                                                                                                                TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 74.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1637 SQNPPVLKRHQR 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0:
FILING DATE: 24-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
FILING DATE: 18-JUL-199
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: SUGAWARA, Keishin
APPLICANT: MASUDA, Kenichi
TITLE OF INVENTION: PROCESS FOR PREPARING HUMAN COAGULATION
TITLE OF INVENTION: FACTOR VIII PROTEIN COMPLEX
NUMBER OF SEQUENCES: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: YONEMURA, Hiroshi
APPLICANT: TAJIMA, Yoshitaka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 3000 K Street: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 12; Conserva
                                                                                                                                                                                                                                                                                   TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE:
                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 SQNPPVLKRHQR 14
                             SQNPPVLKRHQR 14
                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/08276594A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Foley & Lardner 3000 K Street, N.W.,
                                                               Conservative
                                                                                                                                                                                                                                                                                   (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-JUL-1994
                                                                                86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US 07/950,191
                                                                                                                                                                                                                                                                                                                                                                                                                    JP 243262/1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/276,594A
                                                                 0;
                                                                                                Score 65;
                                                                                                                                                                                                                                                                                                                                     74129/195/AOPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 65;
Pred. No.
                                                                                  Pred. No.
                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Suite 500
                                                                                DB 1;
0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2332;
                                                                                                Length 2332;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

0;

```
밁
                                                                                                                                                                                                                                                             US-08-670-707A-2
                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-474-503-2
                                                                                                                                                                                                                           Sequence 2, Application US/08670707A Patent No. 5859204
                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application US/08474503 Patent No. 5744446
                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY_AGENT INFORMATION:

NAME: Pratt, John S.

REGISTRATION NUMBER: 29,476
REFERENCE/DOCKET NUMBER: EMU1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 404-815-6500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein
HYPOTHETICAL: YES
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                               1637 SQNPPVLKRHQR 1648
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                  CORRESPONDENCE ADDRESS:
ADDRESSEB: Greenlee, Winner and Sullivan, P.C STREET: 5370 Manhattan Circle Suite 201
                                                                                                                                                                     APPLICANT: LOllar, John S.
TITLE OF INVENTION: Hybrid Human/Animal Factor VIII
                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Emory University TITLE OF INVENTION: Hybrid !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                     COUNTRY: U:
ZIP: 80303
                                                                         STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: amino acid
STRANDEDNESS: si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                          CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE TYPE: Liver cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/474,503 FILING DATE: 07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: UZIP: 30309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY:
                                                                                                                                                                                                                                                                                                                                                               3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                 l Similarity
12; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Atlanta
Georgia
                                                                                         Boulder
                                                                     Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2332 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: Kilpatrick & Cody
1100 Peachtree Street, Suite 2800
                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                           100.0%; F.
                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMU106CIP(3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human/Animal Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                               Score 65;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                             DB 1; I
. 0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                               Length 2332;
                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

0;

```
В
                                                                                                                                                                                                                                                                                                                                                                                  US-09-037-601-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TISSUE TYPE: Liver US-08-670-707A-2
                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/09037601 Patent No. 6180371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
        SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/037,601 FILING DATE: 26-JUN-1996 CLASSIFICATION:
                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: Greenlee, Winner and Sullivan, P.C.
STREET: 5370 Manhattan Circle Suite 201
                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                            APPLICANT: LOLLAR, TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1637 SQNPPVLKRHQR 1648
                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Greenlee, Lorance L.
REGISTRATION NUMBER: 27,894
REFERENCE/DOCKET NUMBER: 75
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: U
FILING DATE: 11-MAR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                               STREET: 5370 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: 303/499-8089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: WO POFILING DATE: 15-NOV-1994
                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
STRANDEDNESS: si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US 07/864,004 FILING DATE: 07-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
                                                                                                                                                                  80303
                                                                                                                                                                                                   Colorado
                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                 Lollar, John S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303/499-8080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : protein
YES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-JUN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-MAR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86.7%; Score 65;
100.0%; Pred. No.
tive 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                 Hybrid Human/Animal Factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO PCT/US94/13200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 08/212,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/08/670,707A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75-95F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 2332;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
```

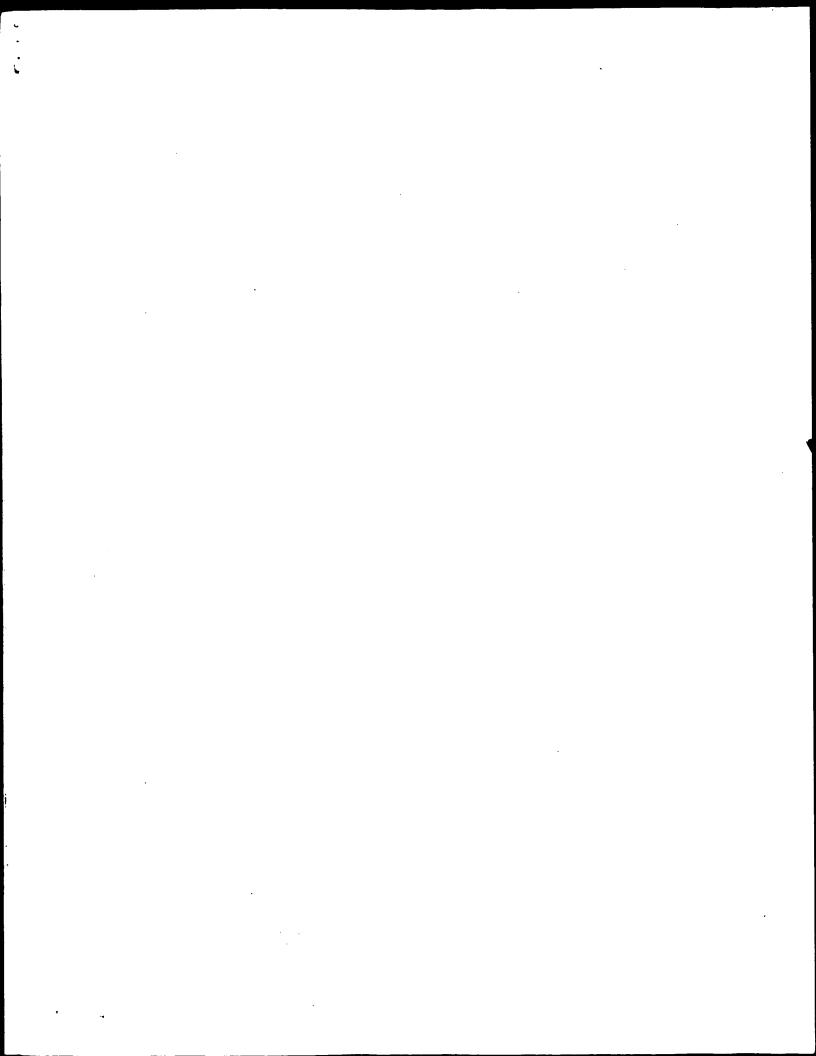
WO PCT/US94/13200

1637 SQNPPVLKRHQR 1648

```
Ş
                                                                                                                                                          ; ORGANISM: Homo sapiens US-09-324-867-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-324-867-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-037-601-2
                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                             SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 3
LENGTH: 2332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3, Application US/09324867A Patent No. 6251632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                         APPLICANT: Horrocks, L. Suzanne Hoyle
APPLICANT: Hough, Christine
TITLE OF INVENTION: Canine Factor VIII Gene, Protein and Methods of Use
FILE REFERENCE: 1669.001002/JAG/BJD
CURRENT APPLICATION NUMBER: US/09/324,867A
CURRENT FILING DATE: 1999-06-03
EARLIER APPLICATION NUMBER: 03/035,141
EARLIER FILING DATE: 1998-03-059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Lillicrap, David
APPLICANT: Cameron, Cherie
APPLICANT: No. 62516321ey, Colleen
                                                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 303/499-8089
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino acids
                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1637 SQNPPVLKRHQR 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 75
TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/499-8080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 11-MAR-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/864,004
FILING DATE: 07-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 11-MAR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 15-NOV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Ferber, Donna M. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                  3 SQNPPVLKRHQR 14
12;
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86.7%; Score 65; DB 4; Length 2332; 100.0%; Pred. No. 0.0054; ative 0; Mismatches 0; Indels
                                                                            86.7%; Score 65; DB 4; Length 2332; 100.0%; Pred. No. 0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US 08/212,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33,878
                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75-95F
                                                           0; Indels
                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                           0;
```

```
Вb
                                                                                                                                                          PCT-US94-13200-2
                                                                                                                                                                          RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                              PCT-US93-03275-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT-US93-03275-4
                                                                                                                                                                                                                                                                                    B6.7%; mest Local Similarity 100.0%; Matches 12; Conservation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION
                                                                                                                      sequence 2, Application PC/TUS9413200
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 404-815-6555
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                            1637 SQNPPVLKRHQR 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US 07
FILING DATE: 07-APR-1992
ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 30309-4530
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Lollar, John S.
APPLICANT: Runge, Marschall S.
TITLE OF INVENTION: Hybrid Human/Porcine Factor VIII
                                                                                   APPLICANT: Emory University TITLE OF INVENTION: Hybrid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION: TELEPHONE: 404-815-6508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                   CORRESPONDENCE ADDRESS
                                                         NUMBER OF SEQUENCES: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 2332 amino aci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 1100 P
CITY: Atlanta
STATE: Georgia
                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapien
TISSUE TYPE: Liver cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: EMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 19930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
ADDRESSEE: Kilpatrick & Louy
STREET: 1100 Peachtree Street, Suite 2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application PC/TUS9303275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100 Peachtree Street, Suite 2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2332 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kilpatrick & Cody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19930407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/864004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT/US93/03275
                                                                                                                                                                                                                                                                                                                     Score 65; DB 5; Length 2332; Pred. No. 0.0054;
                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMU 106PCT
                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                        0;
```

```
STATE: Georgia
COMPTRY (DECEMBER): CONTRY (DECEMBER): COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
COMPUTER: IDM PC COMPACTION:
COMPUTER: PATCH (THE PER PLANCE) COMPACTION:
COMPUTER: PATCH (Release #1.0, Version #1.25
COMPARE: PATCH (RELEASE #1.0, Version #1.25
COMPARE: PATCH (RELEASE #1.0, Version #1.25
COMPACTION: PATCH (RELEASE #1.0, VERSION ON: 2:
COMPACTION: PATCH (RELEASE #1.0)
COMPACTION: PATCH (RE
```



```
Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              on:
 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match Length
550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

550.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77

560.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SwissProt_39:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapop 10.0 , Gapext 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-740-211-15
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             January 17, 2002, 12:36:00;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100059 segs, 36664827 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SFSQNPPVLKRHQR 14
2415
199
199
304
436
1333
356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DΒ
                                                                                                                                                                                                                                                                                                                                                                   GDB1_WHEAT
Y177_TREPA
SOS1_HUMAN
GLTA_WHEAT
                                                                                                                                                                                                                                                                                                                      F16B_MOUSE
PROC_NEUCR
HTPX_AERPE
                MYBB_XENLA
PXA1_YEAST
                                                YAN9_SCHPO
UVRD_RICPR
                                                                              DNB2_ADE02
DNB2_ADE05
LCP2_MOUSE
CET1_YEAST
ZF28_MOUSE
                                                                                                                                                         ZEP2_HUMAN
HTPX_PYRHO
NODD_AZOCA
Y067_MYCGE
                                                                                                                                                                                                                                         CPHA_SYNY3
MRP3_RAT
                                                                                                                                                                                                                                                                                      BMP2_MOUSE
YGG4_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                  R13A_YEAST
R13B_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FA8_HUMAN
                                                                                                                                                                                                                          SPCB_MOUSE
                                                                                                                                                                                                                                                                         OPT1_DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPCA_DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Search time 10.27 Seconds (without alignments)
49.981 Million cell updates/sec
                              p15508 mus musculu
p31629 homo sapien
o58997 pyrococcus
p20669 azorhizobiu
p47313 mycoplasma
p03264 human adeno
p03265 human adeno
o60787 mus musculu
o13297 saccharomyc
p10078 mus musculu
o1078 mus musculu
o10078 rickettaia
p52551 xenopus lae
                                                                                                                                                                                                                                                                                                        Q06194
P12263
P133959
Q12699
Q12699
Q12699
Q12889
P910385
P910385
P91323
Q12641
Q9yd67
P21274
                                                                                                                                                                                                                                       P53166
P91679
P73833
O88563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P00451 homo sapien
                P41909
                                                                                                                                                                                                                                         synechocyst
rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                    saccharomyc
saccharomyc
                xenopus lae
saccharomyc
                                                                                                                                                                                                                                                                         saccharomyc
drosophila
                                                                                                                                                                                                                                                                                                          mus musculu
                                                                                                                                                                                                                                                                                                                       aeropyrum p
                                                                                                                                                                                                                                                                                                                                        neurospora
                                                                                                                                                                                                                                                                                                                                                       mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                   triticum ae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sus scrofa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mus musculu
                                                                                                                                                                                                                                                                                                                                                                    triticum ae
                                                                                                                                                                                                                                                                                                                                                                                       homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                    treponema
```

KGP3_DROME

₽₽

SULFATION OF 1699.

R K	R R R R	222	RARA	R R R	ያሟጜ	2 72 73	2 22 2	2 2 2	R B	R.F.	7	R R R	명 중 중	몽	RA RA	R R R	Z 0 0	88	GN		DI DI	AC ID	RE FA							
							Toc															FA8	RESULT FA8_HUMAN		443	4 4	 	37	3 3 3 5 4	
[6]	ed set	:	0 7 9	(4) SEQUENCE FI	Hewick K.m.; "Molecular cloning Nature 312:342-347	ett G		(3) SEQUENCE FRO MEDITNE=8506	pressionure 312	Keyt B., See Delwart E.,	SEQUENCE FI MEDLINE-85(4:333-	aracter: I:C and	dfang O	≖റ്"ി	SEQUENCE FROM N.A. MEDLINE=86081164; Pu Truett M.A., Blacher	<pre>Mammalia; Eutheria; P NCBI_TaxID=9606; [1]</pre>	o sapier aryota;	OR F8C.	20-AUG-2001 (Rel. 40, Las COAGULATION FACTOR VIII I	JUL-1986 JUL-1986	_HUMAN 451;	z L		3444	4	34.5	ა <u>ა</u> ა	ມພຸພ	
OF 1699	2064- S., Wi JUN-19	enet.	012; Woo the	ROM N.A.	cloning	.W., Fos	, Knopf	FROM N.A. 5061550: PubMe	of act	burg Tudde	м N.A 1548; apon	349(1985	the nuc	., Ezbar	<pre>K., Kuo C.H., M ., Potter S.J., l.S., Valenzuela</pre>	FROM N.A. 16081164; A., Blach	utheria 9606;	ns (Huma Metazoa	ודחדר צא	(Rel. FACTOR	(Rel.	STA			455.3	л vi o	.00	,00	, 50 50	
•	11 iams R. 197) to th	199-	PubM W.I xon-		of a	ter	J.L., Wozi	PubMed=6	ive hum 7(1984).	P.H., Sm	PubMed=6438526; D.J., Simonsen C.	Š	id	ſ	asi Pu	bмed= R.,	ı; Prıma	n). u; Chordata;	(ACTOR)	40, Las VIII P	01, Crea 01, Last	STANDARD;			215 309 322		580	716		
	ი` _≂	(19	1303 tain		DNA		Ž	<u>4</u>	nan f	nith I	6438		porype		siarz F.R Puma J., P., Dahl	3935 Burk			Anr)	RECUI	eated)				1 Y(
	A. Frowet	92).	~.		encoding	Coe M.	J.F	8528:	human factor	D.H., Vehar	526; en C.		oce Tac				Cata	Cran	•	RSOR	quence	PRT;		ALI	Y042_METJA YL11_CAEEL ASTE_ECOLI	124_TI	35_M)A1_R/	RA_SI	
	l.A. Browett P.J.; EMBL/GenBank/DDBJ		regions		ing huma	L., Kn	٠,		VIII	Holli r G.A.	C., Ea		an		R., Merryweather J. Quiroga M., Rall L HH.M., Favalaro	., Сар	crnini	Craniata; V		ast annotation update) PRECURSOR (PROCOAGULANT	e upda	2351		ALIGNMENTS	TJA	IEMA IEF	OUSE	I A A	ENI ENI	
			of the		n an	Knutson	D D		from r		ton D.		d expression) +	weathe M., Ra Faval	ıt D.,	; HOM1	Vertebrata;		date) AGULAN	te)	AA.		02						
	databas		huma		tiha	G. 4	r.A.		recombinant	d P.,	L., G1		ion of))	J.B	Chu C	niqae;	rata;												
	ises.		n fact		emophilic	ass	뜨뜻				tschier		the	5	_` _		ношо.	Euteleostomi;		COMPONENT)			•		Q60347 Q11098 P76215	P385	P156	0548	P786)
			or			z	٠ ن		DNA c	L.,	r J.		human l	£ 0.0+	rian dolp en J	a D.		osto							47 mc 98 cz 15 eg	13 th			∃ ი თ	,
			VIII		factor		Ľ.,		lones		•		kidney	3	R., h A.,	•		mi;							ethan aenor scher	thermotoga				
													еу												methanococc caenorhabdi escherichia	toga	musculu	sanien	epromyce ricella musculu	

```
VARIANT CYS-1708.
MEDLINE=89274393;
O'Brien D.P., Tudo
                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=88096539; PubMed=3122181;
Levinson B., Janco R.L., Phillips J.A. III, Gitschier J.;
Levinson B. mutation in the factor VIII gene identified
"A novel missense mutation in the factor VIII gene identified
analysis of amplified hemophilia DNA sequences.";
Nucleic Acids Res. 15:9797-9805(1987).
                                                                                                                                Antonarakis S.E.;
                                                                                                                                                                     MEDLINE=88220354;
                                                                                                                                                                                                                                              relative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gitschier J., Wood W.I., Shuman M.A., I "Identification of a missense mutation mild bemorbiliar".
                                                                     "Moderately severe hemophilia A resulting in exon 7 of the factor VIII gene."; Am. J. Hum. Genet. 42:867-871(1988).
                                                                                                                                                                                        VARIANT GLY-291
                                                                                                                                                                                                                       "Nonsense and missense mutations in hemophilia relative mutation rate at CG dinucleotides."; Am. J. Hum. Genet. 42:718-725(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=95245332; PubMed=7728145;
Antonarakis S.E., Kazazian H.H., Tuddenham
"Molecular etiology of factor VIII deficier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Membrane-binding peptide from the amphipathic structure as determined biochemistry 34:3022-3031(1995).
                                                                                                                                                                                                                                                                                               Youssoufian H., Antonarakis
                                                                                                                                                                                                                                                                                                                      MEDLINE=88191889;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /ARIANT PRO-2135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=86235434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT GLN-2326.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REVIEW ON MOLECULAR BASIS OF HEMOPHILIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Blood 73:1-12(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Factor VIII gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=89088506; PubMed=2491949; White G.C. II, Shoemaker C.B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REVIEW ON MOLECULAR BASIS OF HEMOPHILIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gitschier J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=91221499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gilbert G.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-95200924; PubMed=7893714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochemistry 31:3315-3325(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Identification and functional importance residues within recombinant factor VIII.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pittman D.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=92207952; PubMed=1554716;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   essential for the interaction of
                                                                                                                                                                                                                                                                                                                                          ARIANT GLN-2228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  factor.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-91093266; PubMed=1898735;
Leyte A., van Schijndel H.B., Niehrs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mertens K., van Mourik J.A.;
"Sulfation of Tyr1680 of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Biol. Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   molecular basis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         232:1415-1416(1986).
                                                                                                                                                                                                                                                                                   н.н.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NMR OF
Tuddenham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baleja J.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wang J.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            266:740-746(1991)
                                                                                                                                                 wong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sci.
                                                                                                                                             PubMed=2835904;
                   PubMed=2499363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=3012775;
                                                                                                                                                                                                                                                                                                                  PubMed=2833855;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR BASIS OF HEMOPHILIA PubMed=1902642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of hemophilia A."; 614:89-96(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hemophilia A.";
 Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kautman R.J.;
                                                                                                                                                                                                                                                                                                 S.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   blood coagulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factor
                                                                                                                                                                                                                                                                                                 Bell W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uddenham E.G.
deficiency i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C2 domain
                                                                                                                                                 Platokoukis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C., Huttner W.B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lawn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NMR spectroscopy.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                            from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of
                                                                                                                                                                                                                                                                                                 Griffin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tyrosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     j.D.
in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of factor VIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            factor
                                                                                                          Glu-->Gly
                                                                                                                                             Η.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
hemophilia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   factor VIII is
                                                                                                                                                                                                                                                              estimate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 von
                                                                                                                                                                                                                                                                                                 Α.Μ.,
                                                                                                                                                 Kazazian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VIII gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sulfate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Willebrand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Verbeet M.P.,
                                                                                                              substitution
                                                                                                                                                                                                                                                              οf
                                                                                                                                                 H.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   forms
                                                                                                                                                                                                                                                                                                                                                                                                            уď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 an
```

```
VARIANTS CYS-1728 AND ASP-1941.
MEDLINE=90169988; PubMed=2106480;
Traystman M.D., Higuchi M., Kaspe
                                                                                               "Characterization of mutations in the sequencing of amplified genomic DNA."; Genomics 6:65-71(1990).
                                                                                                                                       Higuchi M., Wong C., Kochhan L., Kazazian H.H., Antonarakis S.E.;
                                                                                                                                                                                                       MEDLINE=90329422; pubMed=1973901; pattinson J.K., McVey J.H., Boon M., Ajani A., "CRM+ haemophilia A due to a missense mutation internal heavy chain thrombin cleavage site."; pr. J. Haematol. 75:73-77(1990).
                             Kazazian
                                                                                                                                                                  MEDLINE-90152691;
                                                                                                                                                                                                                                                                                                                                                                                                                          "Characterization of a thrombin cleavage site Cys) in the factor VIII gene of two unrelated cross reacting material-positive hemophilia A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-89197216; PubMed-2495245; Inaba H., Fujimaki M., Kazazian H "Mild hemophilia A resulting from of the factor VIII gene."; Pum. Genet. 81:335-338(1989).
              "Use of denaturing
                                                                                                                                                                                                                                                                                                                Casula L., Murru S., Pecorara M., Ristaldi M.S., Restagno (Mancuso G., Morfini M., de Biasi R., Baudo F., Carbonara A. Mancuso G., Morfini M., de Diasi R., Baudo F., Carbonara A. "Recurrent mutations and three novel rearrangements in the "NIII gene of hemophilia A patients of Italian descent.";
                                                                                                                                                                               VARIANTS PHE-1699 AND CYS-1708
                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=90123183;
                                                                                                                                                                                                                                                                                                                                                                                                                Blood 75:384-389(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arai M., Higuchi M., Antonarakis S.E., Phillips J.A. III, Janco R.L., Hoyer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-90105723;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mutation altering a thrombin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arai M., Inaba H., Higuchi
Fujimaki M., Hoyer L.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "An over missense mutation in exon 4 of the resulting in moderately severe hemophilia A. Blood 74:2688-2691(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VARIANT CYS-391. MEDLINE=90001543;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VARIANT CYS-1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (arginine-372-->histidine).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Direct characterization of factor VIII in mutation altering a thrombin cleavage site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=89264602;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT LEU-2326.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-90057680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT LEU-189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        thrombin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nonfunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "An arginine to cysteine amino acid substitution thrombin cleavage site in a dysfunctional factor plood 74:1612-1617(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Purification
                                                                                                                                                                                                                                                                                                      75:662-670(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Natl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M., Ware J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73:2117-2122(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HIS-391
                               H.H.;
                                                                                                                                                                                                                                                                                                                                                                                   GLN-2228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and characterization of factor VIII 1,689-Cys: cofactor occurring in a patient with severe hem
                                                                                                                                                                                                                                                                                                                                                                   AND LEU-2326.
Pubmed=2105106;
                                                                                                                                                                  PubMed=2105906;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=2104766;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=2498882;
, Higuchi M., Antonarakis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=2510835;
               gradient gel electrophoresis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=2506948;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yoshioka A., Fukui H.,
gene.
                                          Kasper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86:4277-4281(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ξ
                                                                                                                                                  Olek K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .H. Jr., Antonarakis S.E. Arg-to-Leu substitution
                                         C.K.,
                                                                                                                          factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kazazian H.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patient with severe hemophilia
                                          Antonarakis
                                                                                                                                                  Aronis S., Kasper C.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        he factor VIII:C A.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor VIII molecule.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fulcher C.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            plasma:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                            patients with .";
                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutation
                                                                                                                                                                                                                                  (372-->Cys)
                                                                                                                                                                                                                                                Tuddenham E
               6
                                                                                                                                                                                                                                                                                                                                                         Restagno G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kazazian H.H.
                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              detection
                                          S
                                                                                                                         ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Arg
               point
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                .
ണ
                                                                                                                                                                                                                                                                                                                                factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Jr.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26
```

the

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

CONTAINS TISSUE-Liver;

SEQUENCE FROM N.A.

SEQUENCE OF THE MUTINE FACTOR VIII CDNA.";

SEQUENCE OF THE MUTINE FACTOR VIII, ALONG WITH CALCIUM AND PHOSPHOLIPID, ACTS

CONTAINS FACTOR FOR FACTOR XA.

CONTAINS FACTOR XA.

CONTAINS SECUENCE AS A COMPOSED OF TISSUE SPECIFICITY: FOUND IN MOST TISSUES.

CONTAINS SECUENCE ADMAINS; EACH IS COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE ADMAINS; EACH IS COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE ADMAINS; EACH IS COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE ADMAINS; EACH IS COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE ADMAINS; EACH IS COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE TO CONTINUE FACTOR WAS THE COMPOSED OF THE SIMILARITY: CONTAINS SECUENCE TO CONTINUE FACTOR WAS THE COMPOSED OF THE COMPOSED O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                    HSSP; P00451; 1CFG.
MGD; MGI:83383; F8.
InterPro; IPR001117; Cu-oxidase.
InterPro; IPR000421; FA58_C.
Pfam; PF00394; Cu-oxidase; 3.
Pfam; PF00754; F5_F8_type_C; 2.
SMART; SM00231; FA58C; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FA8_MOUSE
Q06194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
COAGULATION FACTOR VIII PRECURSOR (PROCOAGULANT COMPONENT).
                                                                                                                                                                            Signal;
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF8 OR F8C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-1994
                                                                             DOMAIN
DOMAIN
                                                                                                                                       DOMAIN
DOMAIN
                                                                                                                                                                                                                                                          PROSITE; PS00079; MULTICOPPER_OXIDASE1; PROSITE; PS01285; FA58C_1; 2. PROSITE; PS01286; FA58C_2; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; A47004; A47004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; L05573; AAA37385.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                         Blood coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation. European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way infinitely and this statement is not removed. Usage by and for commercial lifted and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: STRONG, TO COAGULATION FACTOR V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SONPPVLKRHOR 1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                    Glycoprotein;
20
20
20
207
207
399
399
399
399
1683
1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                            19
2319
349
199
730
573
730
1640
1845
                                                                                                                                                                                                                                         Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86.7%;
                                                                                                                                                                                                                        Sulfation
                                                                                                                                                                                                                                       2.
Plasma; Acute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                           F5/8 TYPE A 1.

PLASTOCYANIN-LIKE 1

PLASTOCYANIN-LIKE 2

F5/8 TYPE A 2.

PLASTOCYANIN-LIKE 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 65;
Pred. No.
                      B.
F5/8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                 COAGULATION
    PLASTOCYANIN-LIKE
                                                              PLASTOCYANIN-LIKE
                                                                                                                                                                                                        POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                    TYPE A 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA
                                                                                                                                                                                 FACTOR VIII.
                                                                                                                                                                                                                                         phase; Calcium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 2351;
                                                              <u>+</u>ω
                                                                                                                        21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
FAB_FAG
AC P12
DT 01-
DT 01-
DT 01-
DT 01-
DT 01-
COA
CFB
OS Sus
OC EUA
NCE
NN NCE
RN 11]
RP SEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                            RESULT
                                                                                      FAR_PIG
FAR_PIG
PAR_PIG
PAR_PI
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
DOMAIN
DOMAIN
SITE
SITE
SITE
SITE
SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOD_RES
MOD_RES
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DISULFIC
                                                                                                                                                                                                                                                                                                                                         1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
  SEQUENCE FROM N.A
                                Mammalia; Eutheria;
NCBI_TaxID=9823;
                                                           Eukaryota;
Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                            SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                       SQIPPVLKRHQR 1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             547
1819
2008
2161
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1640
367
737
738
742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       759
1678
1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1687
173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1087
1136
11161
1152
1258
1258
1273
1274
1302
1310
1340
1378
1378
1378
1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1015
1022
1026
1044
1076
                                                                             Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      760
1679
1325
1641
367
737
738
742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1687
199
573
1845
2156
                                                             Chordata; Craniata; Vertebrata; Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                     74.78;
91.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     266148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLEAVAGE (BY THROMBIN) (BY SIMILARITY).
CLEAVAGE (BY THROMBIN) (BY SIMILARITY).
CLEAVAGE (BY THROMBIN) (BY SIMILARITY).
CLEAVAGE (ACTIVATION) (BY SIMILARITY).
CLEAVAGE (ACTIVATION) (BY SIMILARITY).
SULFATION (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED MW; FD054
                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
N-L
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 56;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLASTOCYANIN-LIKE F5/8 TYPE C 1. F5/8 TYPE C 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BY SIMILARITY
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROBABLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROBABLE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SULFATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROBABLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SULFATION (REQUIRED FOR VWF BINDING) (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FD054DE051DB2A01
                                                                                                                                       tion update)
(PROCOAGULANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC.)
(GLCNAC.)
(GLCNAC.)
(GLCNAC.)
(GLCNAC.)
(GLCNAC.)
(GLCNAC.)
(GLCNAC.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GLCNAC.
(GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1
0.13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2319;
                                                                                                                                           COMPONENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                             Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

0;

```
RAP RAPER TO THE TERM THE TERM TO DESCRIPT THE TERM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001117; Cu-oxidase.
InterPro; IPR000421; FA58_C.
Pfam; PF00394; Cu-oxidase; 3.
Pfam; PF00374; F5_F8_type_C; 2.
SMART; SM00231; FA58C; 2.
PROSITE; PS00179; MULTICOPPER_OXIDASE1; 3.
PROSITE; PS01285; FA58C_1; 2.
PROSITE; PS01286; FA58C_2; 2.
                                                                                DISULFID DISULFID
                                                                                                                       MOD_RES
MOD_RES
                                                                                                                                                                                                                         DOMAIN
SITE
SITE
                                           DISULFID DISULFID
                                                                                                                                                                                 SITE
                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Biol.
                          DISULFID
                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Signal; Glycoprotein; SIGNAL 1 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BTOOQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR; A25945; A25945.
HSSP; P00451; 1CFG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; U49517; AAB06705.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 392-759 FROM N.A. MEDLINE=94179260; PubMed=7510693;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 705-1573 FROM N.A. MEDLINE-86287369; PubMed=3016730; Toole J.J., Pittman D.D., Orr E.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "A large region (approximately equal to 95 kDa) of human factor VIII is dispensable for in vitro procoagulant activity."; proc. Natl. Acad. Sci. U.S.A. 83:5939-5942(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lubin I.M., Healey J.F., Scandella D., Rur
"Elimination of a major inhibitor epitope
J. Biol. Chem. 269:8639-8641(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Healey J.F., Lubin I.M., Lo. Submitted (MAY-1996) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kaufman R.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION: EXTRACELLULAR.
SIMILARITY: CONTAINS 3 F5/8 TYPE A DOMAINS: EACH
2 PLASTOCYANIN-LIKE REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3101. Chem. 269:8639-8641(1994).
FUNCTION: FACTOR VIII, ALONG WITH CALCIUM AND PHOSPHOLIPID, ACTS AS A COFACTOR FACTOR IXA WHEN IT CONVERTS FACTOR X TO THE ACTIVATED FORM, FACTOR XA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: STRONG, TO COAGULATION FACTOR V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: CONTAINS 2 F5/8 TYPE C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 coagulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J.F.,
                                                                                                                                        1449
1490
737
738
                                                                                                                                                                                                                                                                                                 760
1495
1495
1669
    Repeat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sulfation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lollar P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Plasma; Acute
                                                           PROBABLE. PROBABLE.
                                                                                                 CLEAVAGE (
SULFATION
SULFATION
SULFATION
PROBABLE.
                                                                                                                                                                                                  CLEAVAGE
CLEAVAGE
CLEAVAGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                F5/8
                    BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                            F5/8
                                                                                                                                                                                                                                                                                                   PLASTOCYANIN-LIKE PLASTOCYANIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                              PLASTOCYANIN-LIKE PLASTOCYANIN-LIKE
                                                                                                                                                                                                                                                                                                                                          F5/8 TYPE A 3
                                                                                                                                                                                                                                                                                                                                                                                                                                       PLASTOCYANIN-LIKE PLASTOCYANIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F5/8 TYPE A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COAGULATION
                                                                                                                                                                                                                                                                                                                                                                                                                     /8 TYPE A
                                                                                                                                                                                                                                                              TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D., Runge
                                                                                                                   EE (BY THROMBIN) (BY SIMILARITY).
EE (BY THROMBIN) (BY SIMILARITY).
EE (ACTIVATION) (BY SIMILARITY).
EE (BY THROMBIN) (BY SIMILARITY).
CON (BY SIMILARITY).
CON (BY SIMILARITY).
CON (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Murtha
  (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAINS
                                                                                                                                                                                                                                                                                                                                                                                                                     Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FACTOR VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         phase; Calcium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      factor
                                                                                                                                                                                                                                                                                                 თა
                                                                                                                                                                                                                                                                                                                                                                              . ω
                                                                                                                                                                                                                                                                                                                                                                                                                                       2 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wasley L.C.,
.) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lollar P.; r VIII.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IS COMPOSED OF
```

```
ACCOMPANDA 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
SPCA_DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
        Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
Adams M.D., Celniker S.E., Holt R.A., Hoskins R.A., Galle R.F.,
George R.A., Lewis S.E., Richards S. Ashburner M., Henderson S.N.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeliffer B.D.,
Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeliffer B.D.,
Brandon R.C., Rogers Y.-H.C., Blazej R.G., Nelson C.R., Miklos G.L.G.,
Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Beeson R.Y., Benos P.V., Berman B.P., Brokstein P., Brottier P.,
                                                                                                                                                                                                                                                                                                                                                                                        Dubreuil R.R., Byers T.T., Sillman A.L., Bar-Zvi D., Goldstein L.S.B., Branton D.; "The complete sequence of Drosophila alpha-spectrin: conservation structural domains between alpha-spectrins and alpha-actinin."; J. Cell Biol. 109:2197-2205(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPECTRIN ALPHA CHAIN.
ALPHA-SPEC OR SPEC-A OR CG1977.
Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc.
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPCA_DROME STANDARD; PRT; 2415 AA P13395; Q9W085; Q28340; O1-JAN-1990 (Rel. 13, Created) 20-AUG-2001 (Rel. 40, Last sequence update) 20-AUG-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                            MEDLINE=20196006;
                                                                                                                                                                                                                                                                                                                          STRAIN-BERKELEY
                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE=90037215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1441 PPVLRRHQR 1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 PPVLKRHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1133
1191
1209
1437
1456
1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1408
1611
1919
713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               985
1025
1111
1111
1181
1208
1245
1265
1335
Busam D.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=2808524;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          985
1025
1111
1181
11208
1245
1245
1245
1245
1335
1335
1408
1611
1919
734
792
793
793
793
793
793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62.7%;
Butler H., Cadieu E., Center A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-LINKED (N-LINKED) (N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 47;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-LINKED
N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               > F (IN REF. 2).
> L (IN REF. 2).
> F (IN REF. 2).
> F (IN REF. 2).
> G (IN REF. 2).
> R (IN REF. 2).
> N (IN REF. 2).
> N (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (IN REF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2415 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLCNAC
GLCNAC
GLCNAC
GLCNAC
GLCNAC
GLCNAC
GLCNAC
GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brachycera; Muscomorpha;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 2133;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL) .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Perriera S., Fleischmann W.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hastin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Liu X., Mattei B., MCINCOSh T.C., MCLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mentor D.R., Nelson K.A., Nixon K., Nuskern D.R., Pacleb J.M.,
RA Melson D.R., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Rimert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Spier E., Spradling A.C., Stapleton M., Skupski M.P., Smith T.,
RA Spier E., Spradling A.C., Stapleton M., Strong R., Son E.,
RA Williams S.M., Woodseg T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA Williams S.M., Woodseg T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA Zheng X.H., Zhong F.N., Zhong M., Zhang G., Zhao Q., Zheng L.,
RA Zheng X.H., Zhong F.N., Zhong M., Zhou X., Zhu X., Smith H.O.,
RRI "The genome sequence of Drosophila melanogaster.";
RT "The genome sequence of Drosophila melanogaster.";
                                              Pesacreta T.C., Byers T.J., Dubreuil R., Kiehart D "Drosophila spectrin: the membrane skeleton during J. Cell Biol. 108:1697-1709(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dubreuil R., Byers T.J., Branton D., Goldstein L.S.B., Kiehart D.P., "Drosophilia spectrin. I. Characterization of the purified protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHARACTERIZATION.
MEDLINE=88059242; Pubmed=3680372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=94090340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS) OF 1391-1497.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBRYONIC LOCALIZATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster.";
J. Cell Biol. 123:1797-1809(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yan Y., Winograd E., Viel A., Cronin T., Harrison S.C., Br
Crystal structure of the repetitive segments of spectrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=89234159; PubMed=2497103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=94103334;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 1-150 AND 2192-2415 FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lee J.K., Coyne R.S., Dubreuil R.R., Goldstein L.S.B., Branton D
Cell shape and interaction defects in alpha-spectrin mutants of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cell Biol. 105:2095-2102(1987).
DEVELOPMENTAL STAGE:
SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=8266097;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=8276898;
   TO
                        EXPRESSED BOTH
   THE
MATERNALLY AND ZYGOTICALLY FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kiehart D.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .P., Branton D.;
embryogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Branton D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Branton D.;
```

```
В
                                                                                                                                                                                                                                                         STEETER TERRETER TO THE TERRETER TO THE WANTER TO THE TERRETER TO THE TERRETER
                                                                                                                                     Query Match
Best Local
                                                                                                             Matches
1995
                                                                                                                                                                                                                                                   CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                   CA_BIND
CA_BIND
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Capping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
REPEAT
REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE; PS00018; EF_HAND; 2.

PROSITE; PS50002; SH3; 1.

Cytoskeleton; Membrane; Erythrocyte; Repeat; Actin-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00326;
SMART; SM00150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMART; SM00054; EFh;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There are no restrictions on use by non-profit institutions as long as its content is in no most big and this statement is not removed. Usage by and for commendation
                                                                                                                                                                                                                                                                                                                                                                                                                          REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REPEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRINTS; PR00452;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00435; spectrin; 22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIR; A33733;
PDB; 2SPC; 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FlyBase; FBgn0003470; Alpha-Spec.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SIMILARITY: CONTAINS 1 SH3 DOMAIN.
-!- SIMILARITY: CONTAINS 22 SPECTRIN REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001452;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002048;
                                                     1 SFSQNPPVLKRH 12
SHAQSPAILKRH 2006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           shape; Calmodulin-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00036; efhand; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   M26400; AAA28907.1; -. AE003472; AAF47569.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PF00018; SH3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S67762; AAB29441.2; -. S67765; AAB29442.1; -.
                                                                                                       Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein; Calcium-binding; SH3 domain; 3D-structure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR002017;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     864
970
1044
1152
1258
1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1470
1577
1683
1789
1895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAY-94.
                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A33733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SH3; 1.
SPEC; 2
                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAF47569.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SH3DOMAIN.
                                                                                                                                                                                                                                                                                 1668
                                                                                                                                                                                                                                                                                                                                                                                               651

963

963

1043

1151

1157

1257

1268

11788

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

1188

11
                                                                                                                                  54.7%;
58.3%;
                                                                                                                                                                                                                                                   278301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SH3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Spectrin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EF-hand.
                                                                                                                                                                                                                                                   ao 🖁
                                                                                                                                                                                                                                                                                                                                                        SPECTRIN 1.
SPECTRIN 2.
SPECTRIN 3.
SPECTRIN 4.
SPECTRIN 6.
SPECTRIN 6.
SPECTRIN 7.
SPECTRIN 10.
SPECTRIN 11.
SPECTRIN 11.
SPECTRIN 11.
SPECTRIN 11.
SPECTRIN 14.
SPECTRIN 15.
SPECTRIN 16.
SPECTRIN 16.
SPECTRIN 16.
SPECTRIN 17.
SPECTRIN 18.
SPECTRIN 19.
SPECTRIN 20.
SPECTRIN 21.
SPECTRIN 22.
EF-HAND 1 (POTENTIAL).
EF-HAND 2 (POTENTIAL).
                                                                                                          ω,
                                                                                                                                     Score 41;
Pred. No.
                                                                                                                                                                                                                                                                                                                                         SH3
                                                                                                                                                                                                                                                                                 '
                                                                                                                                                                                                                                                                              -> D (IN REF. 3)
-> R (IN REF. 1)
                                                                                                          Mismatches
                                                                                                                                                                                                                                                   F1F72FB990EB0A37 CRC64;
                                                                                                                                     55;
                                                                                                                                                                1; Length 2415;
                                                                                                       Indels
                                                                                                       0;
                                                                                                       Gaps
                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              its
```

```
Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q12690;
01-NOV-1997 (Rel. 3
01-NOV-1997 (Rel. 3
15-DEC-1998 (Rel. 3
                                                                                                                                                                                                                                                                                      P40212;
P1-FEB-1995 (Rel. 31, Created)
O1-FEB-1995 (Rel. 31, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
60S RIBOSOMAL PROTEIN L13-B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RPL13A OR YDL082W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60S RIBOSOMAL PROTEIN L13-A.
the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                      Badcock K., Churcher C., Barrell B.G., Rajandream M.A., Walsh S.V. Submitted (DEC-1994) to the EMBL/GenBank/DDBJ databases.
-!- MISCELLANEOUS: THERE ARE TWO GENES FOR L13 IN YEAST.
                                                                                                                                                                                                                                                                                                                                                                                   YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001380; Ribosomal_L13E.
pfam; Pf001294; Ribosomal_L13e; 1.
probom; PD004443; Ribosomal_L13e; 1.
pROSITE; PS01104; RIBOSOMAL_L13E; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=4932;
                                                                                                                                                                                                                                 Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ribosomal protein; Multigene family. SEQUENCE 199 AA; 22554 MW; EA7CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                               between
                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                         - i - SIMILARITY: BELONGS TO THE L13E FAMILY OF RIBOSOMAL PROTEINS
                                                                                                                                                                   STRAIN=S288C
                                                                                                                                                                                   SEQUENCE FROM N.A
                                                                                                                                                                                                               NCBI_TaxID=4932;
                                                                                                                                                                                                                               Saccharomycetales;
                                                                                                                                                                                                                                                          Saccharomyces cerevisiae (Baker's yeast)
                                                                                                                                                                                                                                                                          RPL13B OR RPL13 OR YMR142C OR YM9375.11C.
                                                                                                                                                                                                                                                                                                                                                                    R13B_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; Z74130; CAA98648.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
mes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SWISS-PROT entry is copyright. It is produced through a collaboration en the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                            AISKNLPILKNHFR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S0002240;
                                                             the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                     / AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RPL13A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35,
35,
                                                                                                                                                                                                                               Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EA7CC5F1F3C0335A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199 AA
                                                                                                                                                                                                                                                                                                                                                                     199 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 199;
                                                               and the
                                                               EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   commercia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
SO SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               日
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                  Matches
                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Okita T.W., Cheesbrough V., Reeves C.D.;
"Evolution and heterogeneity of the alpha-/beta-type and gamma-type gliadin DNA sequences.";
J. Biol. Chem. 260.8202-2077....-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Triticum aestivum (Wheat).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooldeae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GDB1_WHEAT STANDARD; PRT; 304 AA. P04729; PAT; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUL-1999 (Rel. 38, Last annotation update) GAMMA-GLIADIN B-I PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WHEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ribosomal protein; Multigene SEQUENCE 199 AA; 22525 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR001380; Ribosomal_L13E.
Pfam; Pp001294; Ribosomal_L13e; 1.
ProDom; PD004443; Ribosomal_L13E; 1.
PROSITE; PS01104; RIBOSOMAL_L13E; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                           J. Biol. Chem. 260:8203-8213 (1985).

-i- EUNCTION: GLIADIN IS THE MAJOR SEED STORAGE PROTEIN IN WHEAT.

-i- MISCELLANEOUS: THE GAMMA-GLIADINS CAN BE DIVIDED INTO 3 HOMOLOGY

CLASSES. SEQUENCE DIVERGENCE BETWEEN THE CLASSES IS DUE TO

SINGLE-BASE SUBSTITUTIONS & TO DUPLICATIONS OR DELETIONS WITHIN (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SGD; S0004750;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; Z47071; CAA87356.1; -.
                                                                                                                                                                                                                                                       entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                          SEQUENCE
                                                                                                                                      SIGNAL
                                                                                                                                                    Seed storage protein;
                                                                                                                                                                                                                              EMBL; M11077; AAA34285.1; -.
                                                                                                                                                                                                                                                                           modified and this statement is not removed. Usage by an entities remisee a licerations as long as its content
                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=4565;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Triticeae;
                                                                                                                                                                     SMART; SM00499; AAI; 1.
                                                                                                                                                                                 PRINTS;
                                                                                                                                                                                               InterPro; IPR003612; AAI.
InterPro; IPR001954; Glia_glutenin.
                                                                                                                                                                                                                                                                                                                                                  This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity res 7; Conserv
                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : |:| |:|| | |
2 AISKNLPILKNHFR 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 SFSQNPPVLKRHQR 14
    1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                NEAR DIRECT REPEATS.
                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                              Similarity
                                                                                                                                                                                 PR00208; GLIADGLUTEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Triticum.
                                                                                                          304 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                   Conservative
                                                                                                                          24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RPL13B.
                                                                                                                          304
                                                                                                            34252 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50.7%;
                                                 50.7%;
                                                                                                                                                    Repeat; Signal; Multigene family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 38;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               family
                                                 Score 38;
Pred. No.
                                                                                                                        GAMMA-GLIADIN B-I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BEA3B423EE76EF23 CRC64;
                                                                                                            807EBF447A59D6D5 CRC64;
                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          304 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                 20;
                                                                                                                                                                                                                                                                                                                     There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 199;
                                                                DB
                                                                ۲.
                                                               Length 304;
                                                                                                                                                                                                                                                                                                                                                                                               OR DELETIONS WITHIN OR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                     Indels
                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                     Gaps
                                                                                                                                                                                                                                                                                            commercia.
                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                     0;
```

В

43

SFSQQPPFSQQQQQ

```
RESULT
SOS1_HU
                                                                                                                                                                                                                                                                                                                                                   Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Y177_TREPA

O83207;

20-AUG-2001

20-AUG-2001

20-AUG-2001

20-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TREPA
                                                                                                                                                                                                                                        SOS1_HUI
Q07889;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
        Bar-Sagi D.;
"Human Sos1: a guanine nucleotide exchange factor for Ras that binds
                                       Chardin P., Camonis J.H., Gale N.W., van Aelst L., Wigler M.H.,
                                                      MEDLINE=93262494; PubMed=8493579;
                                                                                  SEQUENCE FROM N.A.
                                                                                                                         Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                  SON OF SEVENLESS
                                                                                                                                                                                                                                                                    HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hypothetical protein; Complete proteome. SEQUENCE 436 AA; 49532 MW; 50A9DC1D838057AB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AE001201; AAC65167.1; -. TIGR; TP0177; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Science 281:375-388(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spirochete."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sodergren E., Hardham J.M., McLeod M.P., Salzberg S., Peterson J., Khalak H., Richardson D., Howell J.K., Chidambaram M., Utterback T. McDonald L., Artiach P., Bowman C., Cotton M.D., Fujii C., Garland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fraser C.M., Norris S.J., Weinstock G.M., White O., Sutton G.G., Dodson R., Gwinn M., Hickey E.K., Clayton R., Ketchum K.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=98332770; PubMed=9665876;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=160;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treponema pallidum.
Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYPOTHETICAL PROTEIN TP0177.
                                                                                                           NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Complete genome sequence of Treponema pallidum, the syphilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Venter J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hatch B., Horst K., Roberts K., Sandusky M., Weidman J., Smith H.O.,
                                                                                                                                                                                                                                                                                                                         351 TESEGPPISRIHKK 364
                                                                                                                                                                                                                                                                                                                                                      1 SFSQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                      HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel.
(Rel.
                                                                                                                                                                                              (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                              PROTEIN HOMOLOG 1 (SOS-1).
                                                                                                                                                                                              40,
40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40, Created)
40, Last sequence up
40, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                50.7%;
35.7%;
                                                                                                                                                                                             Last sequence update)
Last annotation updat
                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spirochaetaceae; Treponema
                                                                                                                                                                                                                                                                                                                                                                                 6,
                                                                                                                                                                                                                                                                                                                                                                                                Score 38; DB Pred. No. 29;
                                                                                                                          Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         436
                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĀĀ
                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                                                                                                                                                                                                                                                          Length 436;
                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . s.,
                                                                                                                                                                                                                                                                                                                                                                                 0;
```

RESULT 10
GLTA_WHEAT
ID GLTA_WHEAT
AC P10385;

STANDARD;

356 AA

```
Š
                                                                                                                           Вb
                                                      Matches
                                                                                 Query Match
                                                                                                                                                                                                                                  Pfam; PF00617; RaSGEF; 1.
Pfam; PF00618; RaSGEFN; 1.
Pfam; PF00621; RhoGEF; 1.
SMART; SM00414; H2A; 1.
SMART; SM00233; PH; 1.
SMART; SM00123; RaSGEF; 1.
SMART; SM00229; RaSGEFN; 1.
SMART; SM00325; RhoGEF; 1.
                                                                                                                                                                                                                                                                                                                                                                   InterPro;
InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                        DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                      Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Soisson S.M., Nimnual A.S., Uy M., Bar-Sagi D., Kuriyan J.; "Crystal structure of the Dbl and pleckstrin homology domains the human Son of sevenless protein."; Cell 95:259-268(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "The solution structure of the pleckstrin homology domain of human SOSI. A possible structural role for the sequential association of diffuse B cell lymphoma and pleckstrin homology domains."; J. Biol. Chem. 272:30340-30344(1997).
                                                                                                                           SEQUENCE
                                                                                                                                                                      DOMAIN
                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                               Guanine-nucleotide releasing
                                                                                                                                                                                                            PROSITE; PS00720; GDS_CDC25; PROSITE; PS50003; PH_DOMAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; L13857; AAA35913.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- SIMILARITY: CONTAINS 1 DBL-HOMOLOGY DOMAIN (DH).
-!- SIMILARITY: CONTAINS 1 PH DOMAIN.
-!- SIMILARITY: CONTAINS 1 RASGEF DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- FUNCTION: PROMOTES THE EXCHANGE OF -!- SUBUNIT: INTERACTS WITH GRB2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=99005193; PubMed=9790532;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zheng J., Chen R.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=98043737;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRUCTURE BY NMR OF 422-551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Science 260:1338-1343(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS) OF 198-551
944 NPEVLKRH 951
                                                                    Local Similarity
                            5 NPPVLKRH 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1AWE; 25-FEB-98.
1DBH; 23-DEC-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        182530;
                                                                                                                                                                                                                                                                                                                                                       PF00169;
                                                                                                                                                                                                                                                                                                                                                                      IPR000219;
                                                                                                                                                                                                                                                                                                                                                                                               IPR000651;
                                                                                                                                                                                                                                                                                                                                                                                                                IPR001849;
                                                                                                                                                                                                                                                                                                                                                                                                                          IPR002119; Histone_H2A.
IPR000166; Histone_core
                                                                                                                                                                                                                                                                                                                                                                                  IPR001895;
                                                      Conservative
                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PubMed=9374522;
                                                                    50.7%;
                                                                                                                                                                                                                                                                                                                                                                      RhoGEF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Corblan-Garcia S., Cahill S.M., Bar-Sagi D.,
                                                                                                                            152463
                                                                                                                                                                                                                                                                                                                                                                                 RasGRF_CDC25.
                                                                                                                                                                                                                                                                                                                                                                                                  RasGEFN.
                                                                                                                                                                                                                                                                                                                                                                                                                          Histone_core
                                                                                                                           MW.
                                                      0;
                                                                    Score 38; Pred. No.
                                                                                                                                                                                 factor;
                                                                                                                                                        RASGEF
                                                                                                                                      POLY-PRO
                                                        Mismatches
                                                                                                                            C6B99CCAllA8DE45 CRC64;
                                                                                                                                                                                                3D-structure.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAS-BOUND GDP
                                                                                 DB 1;
                                                                                 Length 1333;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ВУ
                                                        0;
                                                      Gaps
                                                        0
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DUTE TO SERVICE OF THE SERVICE OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F16B_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-CV. YAMHILL;

MEDLINE-89083577; PubMed=3205747;

Pitts E.G., Rafalski J.A., Hedgcoth C.;

Pitts E.G., Rafalski J.A., Hedgcoth C.;

"Nucleotide sequence and encoded amino acid sequence of a genomic gene region for a low molecular weight glutenin.";

Nucleic Acids Res. 16:11376-11376(1988).

-i- FUNCTION: GLUTENINS ARE THE HIGH MOLECULAR WEIGHT SEED STORAGE PROTEIN OF WHEAT ENDOSPERM. THOUGHT TO BE RESPONSIBLE FOR THE VISCO-ELASTIC PROPERTY OF WHEAT DOUGH.

-i- SUBUNIT: DISULFIDE-BRIDGE LINKED AGGREGATES.
                                                                                                                                                                                                                                                                            15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
FRUCTOSE-1,6-BISPHOSPHATASE ISOZYME 3 (EC 3.1.3.11) (D-FRUCTOSE-1,
BISPHOSPHATE 1-PHOSPHOHYDROLASE) (FBPASE) (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entrepean Bioinformatics Institute. There are no restructe by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
STRAIN=C57BL/6J; PubMed=9106734; MEDLINE=97260614; PubMed=9106734; Cloix J.F., Beaulieu E., Hevor T.K.; "Various fructose-1,6-bisphosphatase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X07747; CAA30570.1; -. PIR; S01992; S01992.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spermatophyta; Magnoliophyta; Triticeae; Triticum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Triticum aestivum (Wheat).
Eukaryota; Viridiplantae; Streptophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-1989 (Rel. 10, Created)
01-MAR-1989 (Rel. 10, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
GLUTENIN, LOW MOLECULAR WEIGHT SUBUNIT PRECURSOR.
                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                        NCBI_TaxID=10090;
                                                                                                                                                                                     Mammalia;
                                                                                                                                                                                                             Eukaryota; Metazoa;
                                                                                                                                                                                                                                  Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                  P97323;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seed storage protein; Repeat; Multigene family; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR003612; AAI.
InterPro; IPR001954; Glia_glutenin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                          16B_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 FSQNPPVLKRHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GROUP 1 CHROMOSOMES OF WHEAT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MISCELLANEOUS: GLUTENINS ARE CODED BY SEVERAL GENES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FSQQPPISQQQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; PR00208; GLIADGLUTEN SM00499; AAI; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              requires a license agreement
                                                                                                                                                                                Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                                                                                                                                Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41020 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 49.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 37;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLUTENIN, LOW MOLECULAR W
; AA2613FC0DD4DCA5 CRC64;
                                                                                                                                                                             Craniata; Ver
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liliopsida; Poales;
     mRNAs in
                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOW MOLECULAR WEIGHT SUBUNIT.
                                                                                                                                                                                                             Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۳.
                                                                                                                                                                                  Muridae;
     mouse brain, liver,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 356;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Poaceae; Pooideae;
                                                                                                                                                                                                             Euteleostomi;
                                                                                                                                                                                  Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ı
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EACH OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     collaboration
                                                                                                                                                                                  Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
```

```
PROC_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                      012641;
15-JUL-1998 (Rel. 36, Cre
15-JUL-1998 (Rel. 36, Las
15-JUL-1999 (Rel. 38, Las
PYRROLINE-5-CARBOXYLATE F
                                                                                                                                                                                                                                                                                                                                                                                                                                         _NEUCR
PROC_NEUCR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE=96004701; PubMed-7565596;
Mayis C.R., McPek M.A., McClung C.R.;
Molecular characterization of the pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         kidney and heart.";
NeuroReport 8:617-622(1997).
-:- CATALYTIC ACTIVITY: D-FRUCTOSE 1,6-BISPHOSPHATE + H(2)0 -
D-FRUCTOSE 6-PHOSPHATE + ORTHOPHOSPHATE.
-:- PATHWAY: NECESSARY FOR, AND SPECIFIC TO, GLUCONEOGENESIS
                                                                                                                                                                                                 mol. Gen.
                                                                                                                                                                                                                                                                                                       Sordariales; Sor
NCBI_TaxID=5141;
                                                                                                                                                                                                                                                                                                                     Eukaryota; Fungi; Ascomyco
Sordariales; Sordariaceae;
                                                                                                                                                                                                                                                                                                                                                             PRO-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its the by non-profit institutions as long as its content is in no way use by non-profit institutions as long as its content is in no way
                                                                                                                                                       MOI. Gen. Genet. 248:341-350(1995)
-i- CATALYTIC ACTIVITY: L-PROLINE
CARBOXYLATE + NAD(P)H.
-i- PATHWAY: TERMINAL (THIRD) STEE
                                                                                                                                                                                                                             Neurospora crassa, which encodes delta
                                                                                                                                                                                                                                                                                                                                               Neurospora crassa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hydrolase; Carbohydrate metabolism; Gluconeogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProDom; PD001491; In_FB_phphtase; PROSITE; PS00124; FBPASE; PARTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00316; FBPase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; Y11067; CAA71946.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5 NPPVLKRHQR 14
                                                                                                                                               SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: BELONGS TO THE FBPASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NPAILEYHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGI:1330236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P09467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       requires a license agreement (See http://www.isb-sib.ch/announce/
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR000146; In_FB_phphtase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1FTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                           . 36, Createa)
. 36, Last sequence update)
1. 38, Last annotation update
BOXYLATE REDUCTASE (EC 1.5.1.
                                                                                                                                                                                                 248:341-350(1995)
                                                                                                                                                                                                                                                                                                                     Ascomycota; Pezizomycotina; ariaceae; Neurospora.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fbp3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94
10459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48.0%;
                                                                                                                                             (THIRD) STEP IN PROLINE BIOSYNTHESIS.
3S TO THE PYRROLINE-5-CARBOXYLATE REDUCTASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , WM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CB8987281DB29944 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                    + NAD(P)(+) = 1-PYRROLINE-5-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No. 12;
                                                                                                                                                                                                                            proline-1 (pro-1) locus of
elta 1-pyrroline-5-carboxylate
                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Usage
                                                                                                                                                                                                                                                                                                                                   Sordariomycetes;
                                                                                                                                                                                                                                                                                                                                                                        (P5CR) (P5C REDUCTASE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entities requires a license agreement (See http://www.isb-or send an email to license@isb-sib.ch).

(See http://www.isb-sib.ch/announce/

and

for

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its the by non-profit institutions as long as its content is in no way

EMBL; U30317; AAA83568.1;

0;

```
SET TITTER WERE DESCRICTED TO CONTROL TO CON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SQ DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                 Pfam, PF01435; Peptidase_M48; 1. PROSITE; PS00142; ZINC PROSITE; PS00142; ZINC PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kawarabayasi Y., Hino Y., Horikawa H., Yamazaki S., Haikawa Jin-no K., Takahashi M., Sekine M., Baba S.-I., Ankai A., Ko Hosoyama A., Fukui S., Nagai Y., Nishijima K., Nakazawa H., Takamiya M., Masuda S., Funahashi T., Tanaka T., Kudoh Y., Yamazaki J., Kushida N., Oguchi A., Aoki K.-I., Kubota K., Nakamura Y., Nomura N., Sako Y., Kikuchi H.;

"Complete genome sequence of an aerobic hyper-thermophilic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _AERPE
  SEQUENCE
                                                                                                  TRANSMEM
                                                                                                                           TRANSMEM
                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 crenarchaeon, Aeropyrum pernix Kl."; DNA Res. 6:83-101(1999).
                                                  ACT_SITE
                                                                                                                                                  TRANSMEM
                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                               InterPro; IPR001915; Peptidase_M48.
                                                                                                                                                                                                                                                                                                                                           MEROPS; M48.004;
                                                                                                                                                                                                                                                                                                                                                               EMBL; AP000060; BAA80030.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROBABLE PROTEASE HTPX HOMOLOG (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-AUG-2001 (Rel.
20-AUG-2001 (Rel.
20-AUG-2001 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9YD67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HTPX_AERPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PSOUSZI; PSCR; 1.
Oxidoreductase; Proline biosynthesis;
SEQUENCE 311 AA; 32151 MW; 9A6D52:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=56636;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Archaea; Crenarchaeota; Desulfurococcales; Desulfurococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aeropyrum pernix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 NPPALPRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the Eleuropean Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5 NPPVLKRH 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL). SIMILARITY: BELONGS TO PEPTIDASE FAMILY M48 (ZINC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        METALLOPROTEASE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OR APE1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF01089;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6;
                                                                                                                                                                                                                                                                                                                                                                                                                         and this statement is not removed. Usage by and for commercial requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   non-profit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR000304; P5CR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                    Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P5CR;
                                                                                                                                                                                                                                           ZINC_PROTEASE; FALSE_NEG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40,
39742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48.0%;
75.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
MW;
                                                                                                                                                                                        Metalloprotease; Zinc; POTENTIAL.
                                                                                           POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 36;
Pred. No.
                                             ZINC (CATALYTIC) (BY SIMILARITY). BY SIMILARITY.
                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
3DF2AF596CC76584 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9A6D525D845984DF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                         (CATALYTIC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ion update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NADP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                      (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ankai A., Kosugi
                                                                                                                                                                                                            Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Υ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

Query Match

48.0%;

Score

36;

DB 1;

Length 366

```
Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity Matches 7; Conserv
                                                                                                                                                                                                                                                                HSSP; p18075; 1BMP.
MGD; MGI:88177; Bmp2.
InterPro; IPR001839; TGF-beta.
InterPro; IPR001111; TGFb_N.
Pfam; PF00019; TGF-beta; 1.
Pfam; PF00688; TGFb_propeptide; 1.
ProDom; PD000357; TGF-beta; 1.
                                                                           DISULFID DISULFID
                                                                                                                                                                          Signal;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BMP2_MOUSE
P21274;
01-MAY-1991 (
01-FEB-1996 (
20-AUG-2001 (
                                                                                                                             CHAIN
                                                                                                                                                                                                                          Prodom; PD000357; TGF
SMART; SM00204; TGFB;
PROSITE; PS00250; TGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 1-331 Environments of the MEDLINE-90228966; PubMed=1970330; MEDLINE-90228966; PubMed=1970330; Dickinson M.E., Kobrin M.S., Silan C.M., Kingsley D.M., Dickinson M.E., Ceci J.D., Lock L.F., Lee A., Buchberg A.M. Miller D.A., Ceci J.D., Lock L.F., Lee A., Buchberg A.M. Miller D.A., Ceci J.D., Lock L.F., Lee A., Buchberg A.M. Cop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-1991 (Rel. 18, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
BONE MORPHOGENETIC PROTEIN 2 PRECURSOR (BMP-2) (BMP-2A).
BMP2 OR BMP-2.
                              DISULFID
                                                       DISULFID
                                                                                                                                                         PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; L25602; AAB05665.1; -. PIR; A34201; A34201.
                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genomics 6:505-520(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Chromosomal localization of seven members of the murine TGF-beta superfamily suggests close linkage to several morphogenetic mutan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biochim. Biophys. Acta 1218:221-224(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (BMP-2): comparison of the structures and BMP-4 genes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE=94289485; PubMed=8018727;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Jenkins N.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Harris S.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Structure and sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               340 FSTHPPVSKR 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBUNIT: HOMODIMER; DISULFIDE-LINKED. SIMILARITY: BELONGS TO THE TGF-BETA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2 FSQNPPVLKR 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way in the state of the st
                                                                                                                                                                                                   Growth
       20
281
294
323
327
358
134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Harris M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      s (Mouse).
S (Mouse).
Chordata; C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INDUCES CARTILAGE AND BONE FORMATION
                                                                                                                                                                                                   factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                     TGF_BETA_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70.0%;
                                                                                                                                                                                                 Cytokine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ghosh-Choudhury N., Feng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mouse bone morphogenetic protein-2
                                               BONE MORPHOGENETIC
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
INTERCHAIN (BY SIMILARITY).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                            Bone; Cartilage; Glycoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      394 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ν
                                                                                                                           PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Copeland N.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mundy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Justice M.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of BMP-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mutant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

```
SOTTE WAS DEFINED BY THE CONTROL OF CONTROL 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YGG4_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
CARBOHYD
CARBOHYD
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      p53166;
01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
PUTATIVE ATP-DEPENDENT RNA HELICASE YGL064C.
                                       SMART; SMO0487; DEXDC; 1.
SMART; SMO0487; HELICC; 1.
SMART; SMO039; HELICC; 1.
PROSITE; PS00039; DEAD_ATP_HELICASE; FALSE_NEG.
Hypothetical protein; ATP-binding; RNA-binding; Helicase.
Hypothetical protein; ATP-binding; RNA-binding; Helicase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-97377993; PubMed-9234674; Feuermann M., de Montigny J., Potier S., Souciet J.-L.; Feuermann M., de Montigny J., Potier S., Souciet J.-L.; Teuermann M., de Montigny J., Potier S., Souciet J.-L.; Suppose S., Lego' organization of the yeast Saccharomyces cerevisiae chromosomes."; Chromosomes."; Yeast 13:861-869(1997).
                                                                                                                                                                                      SGD; S0003032; YGL064C.
InterPro; IPR001410; DEAD_ATP_helcse.
InterPro; IPR001659; DEAD_ATP_helcse.
InterPro; IPR001650; Helicase_C.
pfam; pr00270; DEAD; 1.
pfam; pF00271; helicase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=97435481; PubMed=9290212;
Rieger M., Brueckner M., Schaefer M., Mueller-Auer S.;
"Sequence analysis of 203 kilobases from Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae (Baker's yeast).

Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                            NP_BIND
SITE
                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for content is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yeast 13:1077-1090(1997).
                                                                                                                                                                                                                                                                                                                                                   EMBL; 272586; CAA96767.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-S288C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 1-307 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YGG4_YEAST
  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233 ENPGVSKRHVR 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity les 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4 QNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              162
198
336
110
113
271
394 AA;
  287
561 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                               290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44514 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          48.0%;
63.6%;
     63057 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-LINKED (GLCNAC. . .) (POT T -> S (IN REF. 2).

QL -> HE (IN REF. 2).

G -> R (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 36; DB 1; Length 394; Pred. No. 58;
                               DEAD
        A8CEE92D461DB6EC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      561 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ) (POTENTIAL).
) (POTENTIAL).
) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     way
```

```
Query Match 48.0%; Score 36; DB 1; Length 561;
Best Local Similarity 55.6%; Pred. No. 85;
Matches 5; Conservative 3; Mismatches 1; Indels 0; Gaps 0;
Qy 6 PPVLKRHQR 14
| ::|:||
Db 551 PKIIKKHQR 559
```

Search completed: January 17, 2002, 12:37:52 Job time: 112 sec

```
OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                                                               Database
                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
                                               SPTREMBL_17:*
1: sp_archea:*
2: sp_bacteria:
3: sp_fugi:*
4: sp_human:*
5: sp_inverteb:
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 January 17, 2002, 12:36:00; Search time 22.94 Seconds (without alignments), 89.268 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                      473505 segs, 146272329 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-740-211-15
75
                                                                                                                                                                                                                                                                              Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SFSQNPPVLKRHQR 14
              sp_rodent:*
sp_virus:*
sp_vertebrate:*
                                                                                                                                                                                                           sp_archea:*
sp_bacteria:*
                                                                                                   sp_organelle:*
                                                                                                                                        sp_mammal:*
                                                                                                                                                          sp_invertebrate:*
sp_unclassified:*
                                                                   sp_plant:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
37	37	37	37	37	37	37	37	37	37	37	37	37	37	38	38	38	38	38	38	38	38	38	38	38	38
49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	49.3	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7
624	557	511	481	442	440	432	387	373	360	359	258	190	147	1475	1292	1236	1217	1144	874	636	623	604	348	332	303
U	ı K	10	10	10	10	10	10	10	4	10		w	12	ഗ	10	4	u	σ	σ	N	G	ω	10	N	10
ÖAAVO7	Q9ADE/	Q9LVB1	Q9LZR2	Q9FED7	Q9FFN3	Q9FZI8	Q9FEQ2	022116	Q9P2Y6	P93794	Q9X4J0	Q9UU73	Q9QPZ1	Q9GPV1	Q9LG50	Q9C0I2	P91094	Q9XW61	Q9N4G4	Q9F6Z0	Q18013	013845	Q42956	Q9HVG4	P93792
Kossus arosobiitia									∍		09x4j0 streptomyce		Q9qpzi numan immun	Q9gpvl caenorhabdi	Q91g50 oryza sativ	Q9c012 nomo sapien				_			σ	Q9hvg4 pseudomonas	P93792 triticum ae

ALIGNMENTS

```
RESULT 2
018806
ID 018806
                                                                                                                                                                                              В
                                                                                                                        Query Match
Best Local Similarity 83.3
Matches 10; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  062730
062730;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-1998 (TrEMBLrel. 07, Created)
01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
FACTOR VIII.
                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
TISSUS-KIDNEY, SPLEEN;
GORDY P.W., BOWEN R.A.;
Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF049489; AAC05384.1; -.
HSSP; P00451; 1CFG.
                                                                       1648 SQNPPVSKHHQR 1659
                                                                                                                                                                                                                                                   InterPro; IPR001117; Cu-oxidase.
InterPro; IPR000421; FA58_C.
Pfam; PF00394; Cu-oxidase; 3.
Pfam; PF00754; F5_F8_type_C; 2.
SMART; SM00231; FA58C; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Canis familiaris (Dog).
                                                                                                                                                                                             PROSITE; PS01285; FA58C_1; 2.

PROSITE; PS01286; FA58C_2; 2.

PROSITE; PS00079; MULTICOPPER_OXIDASE1; 3.

SEQUENCE 2343 AA; 265613 MW; F612D744ADAADD99 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9615;
                                                                                             3 SQNPPVLKRHQR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
    PRELIMINARY;
                                                                                                                                          72.0%;
                                                                                                                          Score 54; DB 6; Pred. No. 0.7; 0; Mismatches :
                                                                                                                              0;
     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT; 2343 AA.
     2343 AA
                                                                                                                                                        Length 2343;
                                                                                                                                Indels
                                                                                                                                0,
                                                                                                                                Gaps
```

```
RESCUED OF SECONDARY OF SECONDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                               Waterston
Submitted
                                                                                                                                                                                        Submitted (MAR-1996) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                              Johnston L., Langston Y., Latreille P., Le T., Mardis E., Menezes S., Miller N., Nhan M., Pauley A., Peluso D., Rifken L., Riles L., Taich A., Trevaskis E., Vignati D., Wilcox L., Wohldman P., Vaudin M.,
                                                                                                                                                                                                                                                                                                                     STRAIN-S288C (AB972);
Johnston M., Andrews S., Brinkman R., Cooper J., Ding H., Favello A., Fulton L., Gattung S., Greco T., Kirsten J., Fallsworth K., Hawkins J., Hillier L., Jier M., Johnson D. Johnston L., Langston Y., Latteille P., Le T., Mardis E., Langston Y., Latteille P., Le T., Mardis P., L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JAN-1998
01-JAN-1998
01-JUN-2001
                                                                                            STRAIN=S288C (AB972);
                                                                                                                                   SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1996 (TREMBLEEL 01, Last 01-JUN-2001 (TREMBLEEL 17, Last SIMILAR TO SEVERAL DNA HELICASES. YDR291W OR D9819.1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes; Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pfam; pF00394; Cu-oxidase; 3.
pfam; pF00754; F5_F8_type_C; 2.
sMART; sM00231; FA58C; 2.
pR0SITE; pS01285; FA58C_1; 2.
pR0SITE; pS01286; FA58C_2; 2.
pR0SITE; pS01286; FA58C_2; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (MAR-1996) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q05549;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q05549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Giles A., Lillicrap D.;
Submitted (NOV-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AF016234; AAB87412.1; -.
HSSP; P00451; 1CFG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=S288C (AB972);
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cameron C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=LIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutele
Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Canis familiaris (Dog).
Canis familiaris (Dog).
Enkarvota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001117; Cu-oxidase.
InterPro; IPR000421; FA58_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FACTOR VIII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 SONPPVLKRHOR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQNPPVSKHHQR 1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                               (MAY-1996) to
                                                                                                                                                                                                                                          Waterston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 (TrEMBLrel. 6 (TrEMBLrel. 1 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 (TrEMBLrel.
8 (TrEMBLrel.
1 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Notley C., Hoyle S., McGlynn L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ÅĄ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72.0%;
83.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 265829 MW;
                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01, Created)
01, Last sequence update)
17, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05,
05,
17,
                        EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A854FAE571C3B399 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1077 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 6;
0.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hough C., Kamisue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 2343;
                                                                                                                                                                                                                                                                                                                                                                   Johnson D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                       Kucaba T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                          Du Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
```

```
DЬ
                                                       Q9FMN6
                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
Q9AAF6
                                                                     RESULT
                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O9AAF6
Q9AAF6;
O1-JUN-2001 (TremBLrel. 17, Cr.
O1-JUN-2001 (TremBLrel. 17, La
T 01-JUN-2001 (TremBLrel. 17, La
T 01-JUN-2001 (TremBLrel. 17, La
                                                                                                                                                                   Matches
                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
Q9FMN6;
01-MAR-2001
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGD; S0002699; YDR291W.
InterPro; IPR001410; DEAD.
InterPro; IPR001650; Helicase_C.
Pfam; PF00270; DEAD; 1.
Pfam; PF00271; helicase_C; 1.
SWART; SW00487; HELICC; 1.
                                          Q9FMN6
                                                                                                                                                                                                                    TMBL, CT. 20045; -. TIGR; CC0645; -. Complete Hypothetical protein; Complete CTONENCE 188 AA; 21013 MW;
                                                                                                                                                                                                                                                                      Nierman W.C., Feidblyum T.V., Laub M.T., Paulsen I.T., Nelson K.E., Eisen J., Heidelberg J.F., Alley M.R.K., Ohta N., Maddock J.R., Potocka I., Nelson W.C., Newton A., Stephens C., Phadke N.D., Ely B., Deboy R.T., Dodson R.J., Durkin A.S., Gwinn M.L., Haft D.H., Kolonay J.F., Smit J., Craven M.B., Khouri H., Shetty J., Berry K., Kolonay J.F., Tran K., Wolf A., Vamathevan J., Ermolaeva M., White O. Salzberg S.L., Venter J.C., Shapiro L., Fraser C.M.; "Complete genome sequence of Caulobacter crescentus."; Proc. Natl. Acad. Sci. U.S.A. 98:4136-4141(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
STRAIN-S288C (AB972);
Jia Y., Cherry J.M.;
Submitted (JUN-1997) to the EMBL/GenBank/DDBJ databases.
-!- SIMILARITY: TO DEAD/DEAH BOX HELICASE FAMILY.
-!- SIMILARITY: TO HELICASE C-TERMINAL DOMAIN.
EMBL; U51031, AB564466.1; -.
                                                                                                             143
                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. PubMed=11259647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; alpha subdivision; Caulobacter group;
Caulobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Caulobacter crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=69394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATP-binding; Helicase.
SEQUENCE 1077 AA; 123548 MW;
                                                                                                                                                              Local Similarity
nes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             500 NPPILPQHER 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                     3 SQNPPVLKRHQ 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5 NPPVLKRHQR 14
                                                                                                           AEGPPVLRRHK 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6;
(TrEMBLrel. (TrEMBLrel.
                                         PRELIMINARY;
                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                             54.7%;
54.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56.0%;
16,
16,
              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation updat
                                                                                                                                                                             Score 41;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 42; DB
Pred. No. 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                 proteome.
D414A5973FFC3B31 CRC64;
                                                                                                                                                                ed. No. 12;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  948F024154FBE9A6 CRC64;
                                         450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188
                                         A
                                                                                                                                                                                           <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                           Length 188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1077;
                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

Last sequence update)

```
Š
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SQUERT REPORT OF THE PROPERTY 
밁
                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                075319;
075319;
01-NOV-1998
01-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana (Mouse-ear cress).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core e
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                      "PIR1, a novel phosphatase that exhibits high affinity to ribonucleoprotein complexes.";
J. Biol. Chem. 273:20347-20353(1998).
EMBL; AF023917; AAC39925.1;
InterPro; IPR000340; DS_phosphatase.
InterPro; IPR000387; TYR_phosphatase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR1 (BU 3....
Homo sapiens (Human).
Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=98162728; PubMed=9501997; Nakamura Y., Sato S., Kaneko T., Tabata S.;
                                                                                                                                                                                                                   Hydrolase.
SEQUENCE
                                                                                                                                                                                                                                                         PROSITE; PS00383; TYR_PHOSPHATASE_1;
PROSITE; PS50056; TYR_PHOSPHATASE_2;
                                                                                                                                                                                                                                                                                     SMART; SM00012; PTPC_DSPc; 1.
PROSITE; PS00383; TYR_PHOSPHATASE_1;
                                                                                                                                                                                                                                                                                                                                    Pfam; PF00782; DSPc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=98352073; PubMed=9685386;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-NOV-101 (TrEMBLrel. 17, Last annotation update)
PIR1 (EC 3.1.3.48).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR003480; Transferase.
Pfam; PF02458; Transferase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  physically assigned P1 clones.";
DNA Res. 4:401-414(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Structural analysis of Arabidopsis thaliana chromosome 5. III. Sequence features of the regions of 1,191,918 bp covered by seventeen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2001 (TrembLrel. 17, Last annotation update) N-HYDROXYCINNAMOYL/BENZOYLTRANSFERASE-LIKE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yuan Y., Li D.M., Sun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=9606;
267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               201
                                             2 FSQNPPVLKRH 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 QNPPVLKRH 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KNPPVLKRY 209
FSENPHVYQRH 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AB008264; BAB09184.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity 7; Conserv
                                                                                        7; Conserv
                                                                                                                                                                                                                   330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   450 AA; 50523 MW; 2325CFF8739125A2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                   A
A
                                                                                                                                                                                                                 38939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54.7%;
77.8%;
                                                                                                                   53.3%;
                                                                                                                                                                                                                   MW;
                                                                                          2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2;
                                                                                                                 Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 41;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                   0C397F43043B450A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kotani H.,
                                                                                                                                                                                                                                                                   ٠,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      рв
29;
                                                                                                                                        ВВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Embryophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Asamizu E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                     Length 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 450
                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Miyajima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                             0;
```

RESULT

밁

393

PPVYSRHQR 401

```
0.00 Section 11 Section 12 Sectio
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                     Matches
                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                    DOMAIN
NP_BIND
BINDING
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    059697;
01-AUG-1998 (TrEMBLrel. 07, Created)
01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
PROBABLE SERINE/THREONINE-PROTEIN KINASE C32C12.03C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     O9BWE3;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DUAL SPECIFICITY PHOSPHATASE 11 (RNA/RNP COMPLEX 1-INTERACTING).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (MAR-1998) to the EMBL/GenBank/DDBJ databases -:- SIMILARITY: STRONG, TO S.POMBE KIN1. EMBL; AL022172; CAA18163.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9BWE3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Fungi; Ascomycota; Schizosaccharomycete Schizosaccharomycetales; Schizosaccharomycetales
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schizosaccharomyces pombe (Fission yeast).
Eukaryota; Fungi; Ascomycota; Schizosaccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               059697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strausberg R.;
Submitted (NOV
                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                Hypothetical protein; Transferase; Serine/threonine-protein ATP-binding.
                                                                                                                                                                                                                                                                                                                                                        PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00069; pkinase; SMART; SM00220; S_TKC; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000719; Euk_pkinase.
InterPro; IPR002290; Ser_thr_kin_actsite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=4896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Schizosaccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPBC32C12.03C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=RHABDOMYOSARCOMA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
nes 7; Conserv
       6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FSQNPPVLKRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
    PPVLKRHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FSENPHVYQRH 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tted (NOV-2000) to the EMBL/GenBank/DDBJ databases BC000346; AAH00346.1; -. NCE 330 AA; 38896 MW; D69FB85F6984FBF8 CRC64;
                                                                        Similarity
                                                                                                                                                                                                                                                                                                                              PS00107; PROTEIN_KINASE_ATP; 1.
PS50011; PROTEIN_KINASE_DOM; 1.
PS00108; PROTEIN_KINASE_ST; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rajandream M.A.,
                                                                                                                                                                   423
                                                                                                                                                                                         53
59
82
175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
       14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                                                                                 305
67
82
175
47673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53.3<del>8</del>;
                                                                        53.3%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barrell B.G.,
                                                                                                                                                                   MW;
                                                                                                                                                                                       PROTEIN KINASE.
ATP (BY SIMILARITY).
ATP (BY SIMILARITY).
BY SIMILARITY.
                                                     0;
                                                                        Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 40;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                   FDDDB5BF32A78E80 CRC64;
                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    330
                                                                     DB
41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Badcock K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                                                     2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 330
                                                                                             Length 423;
                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Churcher C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (E)
                                                                                                                                                                                                                                                                                                             kinase;
                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
:
                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
```

```
RRESULT
ROBUSVAT
ROBU
                                                                                                                                                                                                                                                                                                                           ID DAC OCCOOL DE DE RESERVA RE
밁
                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                           Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9FIW3
Q9FIW3;
01-MAR-2001
01-MAR-2001
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9U3V4
Q9U3V4;
Q1-MAY-2000
Q1-MAY-2000
Q1-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Me
Pterygota; Ne
Ephydroidea;
                                                                                                                                                                                                                                                                                                                       "Structural analysis of Arabidopsis thaliana chromosome 5. VIII. Sequence features of the regions of 1,081,958 bp covered by seve physically assigned Pl and TAC clones.";
DNA Res. 5:379-391(1998).
EMBL; AB016877; BAB11631.1; -.
SEQUENCE 291 AA; 32563 MW; 5F9BE6F48C37F5CD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embry
Spermatophyta; Magnoliophyta; eudicotyledons;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMB|CAB88415.1.
Arabidono
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TETRASPANIN.
TSP42EA OR BCDNA:GH05668 OR CG18817.
Drosophila melanogaster (Fruit fly).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-99156233; PubMed-10048488;
Asamizu E., Sato S., Kaneko T., Nakamura Y., Kotani H., Miyajima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00335; transmembrane4; PFINTS; PR00259; TMFOUR. SEQUENCE 225 AA; 25897 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (DEC-1999) to the EMBL/GenBank/DDBJ EMBL; AF220041; AAF23825.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tabata S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eurosids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000301; Transmem_4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FlyBase; FBgn0029508; Tsp42Ea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Page-McCaw A.W., Tsang G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Sequencing Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              157 PPLLQRHQQ 165
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
nes 6; Conserv
                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6 PPVLKRHQR 14
                                                                   QNPPVLKRH 12
                                                                                                                                              6
                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  II; Brassicales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               melanogaster (Fruit fly).
Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Neoptera; Endopterygota, Diptera; Brachycera; Musc
a; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel. 16, (TrEMBLrel. 16, (TrEMBLrel. 16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TremBLrel. 13, Created)
(TremBLrel. 13, Last sequence update)
(TremBLrel. 17, Last annotation update)
                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                            52.0%;
66.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25897 MW; 806206990642481D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G., Rubin G.M.;
cDNAs related to tetraspanins.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brassicaceae; Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
Last sequ
                                                                                                                                       2;
                                                                                                                                                                            Score 39;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 39; DB Pred. No. 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    225
                                                                                                                                                                                DB
43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA
                                                                                                                                                                                                              10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Brachycera; Muscomorpha,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      bp covered by seventeen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 225;
                                                                                                                                                                                                              Length 291;
                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rosidae;
                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
망
                                     Qy
                                                                                                                                                                                                                      RA Ballew R. M., Basu A., Marendale J., Bayraktaroglu L., Beaslew E.M., RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S., RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P., Rother A., Chandra I., Bolshakov S., Marking M. M., Bouck J., Brokstein P., Brottier P., Ra Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier R., Chandra I., Ra Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I., Ra Borkova D., Mays A.D., Dew I., Dietz S.M., Ra Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P., Ra Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P., Ra Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P., Ra Dodson K., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W., Ra Godek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M., Ra Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M., Ra Harris N.I., Harvey D., Heinan T.J., Hernandez J.R., Houck J., Ra Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C., Ra Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., Liang Y., Lin X., Ra Liu X., Mattel B., McIntosh T.C., McLeod M.P., McPherson D., Ra Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Ra Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M., Ra Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G., Ra Ra Mang T.-Y., Wassarman D.A., Weinstock G.M., Stupski M.P., Smith T., Ra Ra Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Ra Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Ra Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O., Ra Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O., Ra Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O., Ra Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O., Rubin G.M., Venter J. G., Zhao Q.A., Smith H.O., Ra Zheng X., Fenolossial R. Shang G., Zhao Q. A., S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
Q9W0F6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-MAY-2000
01-MAY-2000
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F., George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N., Sutton G.G., Wortman J.R., Ichards S., Ashburner M., Henderson S.N., Sutton G.G., Wortman J.R., Lichards R.G., Champe M., Pfeiffer B.D., Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D., Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G., Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G., Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D., Pallin, P.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID-7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=BERKELEY; MEDLINE=20196006; PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9WOF6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9W0F6
                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CG9169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CG9169
                                                                                                                                                                                                                FlyBase; FBgn0035217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Adams M.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11
  16
                                                                                    Local Similarity
les 6; Conserv
                                          1 SFSQNPPVLKRHQR 14
SFRRNPDLLQQHRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROTEIN.
                                                                                                                                                                                            445 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ) (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Celniker S.E.,
                                                                                    Conservative
  29
                                                                                                                                                                                            51459 MW;
                                                                                                     52.0%;
                                                                                                                                                                                                                    CG9169.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13,
13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Holt R.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                        Score 39;
Pred. No.
                                                                                                                                                                                            3F6CB46D7424712E CRC64;
                                                                                      ed. No. 65;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Evans C.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                <u>ح</u>
                                                                                      Ņ
                                                                                                                            Length 445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gocayne J.D., .A., Galle R.F
                                                                                      Indels
                                                                                      0
                                                                                      0
```

RESULT Q9FHY4

```
RESULT
Q05161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q05161
Q05161;
                                                                                                                                encoding an 80-kDa polypeptide results in the synthesis of an antigenically altered lipopolysaccharide in E. coli K-12.", Gene 123:9-15(1993).

-I-FUNCTION: MAY BE INVOLVED IN MODIFYING O-ANTIGEN CHAIN LENGTH
                                                                                                                                                                                                     Cheah K.-C., Manning P.A.;
"Inactivation of the Escherichia coli B41 (0101:K99/F41) rfb (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1996 (TremBLrel. 01, Created)
01-NOV-1996 (TremBLrel. 01, Last sequence update)
01-JUN-2001 (TremBLrel. 17, Last annotation update)
0-ANTIGEN BIOSYNTHESIS PROTEIN B.
                                EMBL;
                                                                                                                                                                                                                                                                                                                 STRAIN=0101
                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-MAR-2001
01-MAR-2001
01-JUN-2001
       InterPro;
                                                                                                                                                                                                                                                                                 STRAIN=0101 / B41;
MEDLINE=93138438; PubMed=8423009;
                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00069; pkinase; 1.

SMART; SM00220; S.TKC; 1.

SMART; SM00219; TTyrKC; 1.

PROSITE: PS50011; PROTEIN_KINASE_DOM; 1.

PROSITE: PS00108; PROTEIN_KINASE_ST; 1.

ATP-binding; Kinase; Serine/threonine-prosecutions of the control of the control
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA Res. 6:183-195(1999).

-!- SIMILARITY: TO THE SER/THR FAMILY OF PROTEIN KINASES.
EMBL; AB017067; BAB08432.1; -.
InterPro; IPR000719; Euk_pkinase.
InterPro; IPR0002290; Ser_thr_kin_actsite.
InterPro; IPR001245; Tyr_kin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-99397451; PubMed-10470850; Kaneko T., Katoh T., Sato S., Nakamura Y., Asa Miyajima N., Tabata S.; "Structural analysis of Arabidopsis thaliana c Sequence features of the regions of 1,011,550 Pl and TAC clones.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Spermatophyta; Magnoliophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidonsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13
                                                                       SUBCELLULAR LOCATION:
                                                                                        AND/OR LINKAGES BETWEEN THE SUBUNITS. PATHWAY: LIPOPOLYSACCHARIDE BIOSYNTHESIS.
                                              (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SQNPPVIHR 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SQNPPVLKR 11
                                x59852;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 7; Conser
    852; CAA42515.1;
IPR001296; Glyc
                                                                                                                                                                                                                                                                                                                                                                                                                        Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 608 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69479 MW;
Glycos_transf_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52.0%;
77.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Serine/threonine-protein kinase; Transferase. 69479 MW; C2AB8CF51693CFD5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16, Created)
16, Last sequence update)
17, Last annotation update)
                                                                    INTEGRAL MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                      gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 39;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nakamura Y., Asamizu E., Kotani H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        608 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10;
                                                                  PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   chromosome 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          covered by seventeen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                    INNER MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
RESULT
070710
                                                                                                                                                                                                                                                                                                                                                                                         Q9PKM7
                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DR
DR
SQ
SQ
SEQUENCE FROM N.A.
STRAIN=MOPN / NIGG;
K MEDLINE=20150255; PubMed=10684935;
K MEDLINE=20150255; PubMed=10684935;
K MEDLINE=20150255; PubMed=10684935;
K MEDLINE=2015025; PubMed=10684935; PubMed=10684935;
K MEDLINE=2015025; PubMed=10684935; PubMed=1068495; PubMed=1068495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    070710 PRELIMINARY;
070710;
01-AUG-1998 (TrEMBLrel. 0:
01-AUG-1998 (TrEMBLrel. 0:
01-JUN-2001 (TrEMBLrel. 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                01-OCT-2000
01-OCT-2000
01-JUN-2001
                                                                                                                                                                                                  Bacteria;
                                                                                                                                                                                                                 Chlamydia
                                                                                                                                                                                                                                                            ADHERENCE
                                                                                                                                                                                                                                                                                                                                               Q9PKM7;
                                                                                                                                                                                                                                                                                                                                                                   Q9PKM7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2070 FNQNSPIWKQH 2080
                                                                                                                                                                          NCBI_TaxID=83560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Isawa H., Asano S., Sahara K., Iizuka T., Bando H., "Analysis of genetic information of an insect picorna-like virus, infectious flacherie virus of silkworm: evidence for evolutionary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001173; Glycos_transf_2.

Pfam; PF00534; Glycos_transf_1; 1.

Pfam; PF00535; Glycos_transf_2; 1.

Lipopolysaccharide biosynthesis; Transmembrane; SEQUENCE 697 AA; 78892 MW; A55ED6DFC20ED691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00680; RNA_dep_RNA_pol; 1.
Pfam; PF00910; RNA_helicase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arch. Virol. 143:127-143(1998).
EMBL; AB000906; BAA25371.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             relationships among insect, mammalian and plant picorna(-like) viruses.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=98166871; PubMed=9505971;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=12742;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLYPROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000605; RNA_helicase.
InterPro; IPR001205; RNA_pol_P3D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Infectious flacherie virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    684
                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
mes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 FSQNPPVLKRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 FSQNPPVLKRHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF00680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGQVPRNLKKHQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
8; Conserv
                                                                                                                                                                                             muridarum.
Chlamydiales;
                                                                                                                                                                                                                                                        FACTOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3085 AA;
                                                                                                                                                                                                                                                                              (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              345800 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52.0%;
61.5%;
                                                                                                                                                                                                                                                                              15,
15,
                                                                                                                                                                                           Chlamydiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07,
17,
                                                                                                                                                                                                                                                                                Last annotation
                                                                                                                                                                                                                                                                                               Last sequence
                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 39; DB
Pred. No. 1e+(
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 4.3e+02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                   Gill S.R., Heidelberg J.F., Utterback T., Berry K., E Craven B., Bowman C., Dodsc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23FC9600DBF71531 CRC64;
                                                                                                                                                                                                                                                                                                                                                            3335 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3085 AA
                                                                                                                                                                                             Chlamydia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            no DNA stage; Picornaviridae.
                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 3085;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 697;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Inner membrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                     Bass S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
RA Gwinn M., Nelson W., DeBoy R., Kolonay J., McClarty G., Salzberg S.L.,
RA Eisen J., Fraser C.M.;
RT "Genome sequences of Chlamydia trachomatis MoPn and Chlamydia
RT pneumoniae AR39.";
RL Nucleic Acids Res. 28:1397-1406(2000).
DR EMBL; AB002311; AAR39292.1; -.
DR TIGR; TC0438; -
DR TIGR; TC0438; -
DR ROSITE; PS00599; AA_TRANSFER_CLASS_2; UNKNOWN_1.
KW Complete proteome.
SQ SEQUENCE 3335 AA; 376515 MW; F9F7F3D7829CB258 CRC64;
SQ SEQUENCE 344 MW AA; AA; AA; AA; AA; AA; AA;
```